609-CD-500-001

EOSDIS Core System Project

Release 5A Operations Tools Manual for the ECS Project

Final

May 1999

Raytheon Systems Company
Upper Marlboro, Maryland

Release 5A
Operations Tools Manual
for the ECS Project

Final

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RESPONSIBLE ENGINEER

Philip R. Miller /s/ 5/24/99

Philip Miller, Systems Engineer Date
EOSDIS Core System Project

SUBMITTED BY

Mary S. Armstrong /s/ 5/24/99

Mary Armstrong, Development Engineering Manager Date
EOSDIS Core System Project

Raytheon Systems Company
Upper Marlboro, Maryland

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Preface

This document is a formal contract deliverable with an approval code 1. It requires Government review and approval prior to acceptance and use. This document is under ECS contractor configuration control. Once this document is approved, Contractor approved changes are handled in accordance with Class I and Class II change control requirements described in the EOS Configuration Management Plan, and changes to this document shall be made by document change notice (DCN) or by complete revision.

This document is under the control of the EDF Configuration Control Board (CCB).

Any questions should be addressed to:

Data Management Office
The ECS Project Office
Raytheon Systems Company
1616 McCormick Dr.
Upper Marlboro, MD 20774-5301

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Abstract

This document describes the human-machine interface (HMI) characteristics of the tools (computer software configuration items) used by the ECS operations staff.

Keywords: Computer Software Configuration Items (CSCIs), GUI, Interface, Operations, Release 5A, Screens, Software, Tools

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1. Introduction

1.1 Identification

The Release 5A Operations Tools Manual, Contract Data Requirements List (CDRL) item 116, whose requirements are specified in the revised Data Item Description (DID) 609/OP1, is a required deliverable under contract NAS5-60000.

1.2 Purpose

This document describes the human-machine interface (HMI) characteristics of the tools (configuration items) that will be used by the ECS operations staff when performing the following:

- computer systems administration
- system monitoring
- configuration management
- security and accountability
- science software integration and testing
- resource planning
- production planning and processing
- science data ingest, archive and distribution
- user services
- common services

This document provides background information that is the basis for the *Release 5A Operations Procedures for the ECS Project* (DID 611/OP3). The 609 document is intended to (1) familiarize the ECS operators with their tools, (2) be used as a reference for all ECS operational tasks, and (3) be used as an aid during training of ECS operations staff.

1.3 Scope

This document applies to *Release 5A*, and not to any subsequent releases of the ECS. This document is limited to (1) a detailed description of customized operator tools, (2) a brief description of COTS software used by operations and references to the applicable vendor manuals, and (3) a detailed description of customized Commercial Off-the-Shelf (COTS) software. This document will point to DID 611 for all operational procedures or to individual COTS manuals for detailed COTS instructions. It is intended for use by operators and maintainers of the ECS system during the period in which *Release 5A* is used.

1.4 Status and Schedule

This submittal of DID 609/OP1 meets the milestone specified in the Contract Data Requirements List (CDRL) of NASA contract NAS5-60000.

This document reflects the February 14, 1996 Technical Baseline (210-TP-001-006) submitted via contract correspondence No. ECS 194-00343.

1.5 Organization

This document is organized to describe the tools used by ECS operations staff during *Release 5A*.

Section 1.0 provides information regarding the identification, scope, purpose, status, and organization of this document.

Section 2.0 provides a listing of related documents, which were used as source information for this document. The section also identifies the documentation provided for each *Release 5A* software component.

Section 3.0 provides a brief overview of the *Release 5A ECS*.

Section 4.0 This section provides a detailed description of *Release 5A* operations tools. It is organized by operation function and provides the following types of information: tools overview, required operating environment, CSCI function, operator commands, system messages, reports, and outputs.

Appendix A provides a description of *Release 5A* system status and error messages, including probable causes, impacts, and proposed actions.

The Abbreviations and Acronyms section contains an alphabetical list of the abbreviations and acronyms used in *Release 5A*.

The Glossary section contains terms used in this document.

2. Related Documentation

2.1 Parent Documents

The parent document is the document from which the scope and content of this Release 5A Operations Tools Manual has been derived.

423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)
423-41-03	EOSDIS Core System Contract Data Requirements Document

2.2 Applicable Documents

The following documents are referenced within this Release 5A Operations Tools Manual, are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

102-CD-002	Maintenance and Operations Configuration Management Plan for the ECS Project
205-CD-002	Science User's Guide and Operations Procedure Handbook, Volume 4: Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS
205-CD-004	Science User's Guide and Operations Procedures Handbook (Release B.0) for the ECS Project
194-207-SE1	System Design Specification for the ECS Project
304-CD-003	Communications and System Management Segment (CSMS) Requirements Specification for the ECS Project
305-CD-100	Segment/Design Specification for the ECS Project
307-CD-002	Science Data Processing Segment Release and Development Plan for the ECS Project
311-CD-101	Data Distribution Database Design and Schema Specifications for the ECS Project (Draft)
311-CD-102	Data Management Database Design and Schema Specifications for the ECS Project (Draft)
311-CD-104	Interoperability Subsystem (IOS) Database Design and Schema Specifications for the ECS Project (Draft)

311-CD-105	Management Support Subsystem Database Design and Schema Specifications for the ECS Project (Draft)
311-CD-106	Planning and Data Processing Subsystem Database Design and Database Schema Specifications for the ECS Project (Draft)
311-CD-107	Science Data Server Database Design and Schema Specifications for the ECS Project (Draft)
311-CD-108	Storage Management Database Design and Schema Specifications for the ECS Project (Draft)
311-CD-109	Subscription Server Database Design and Schema Specifications for the ECS Project (Draft)
601-CD-001	Maintenance and Operations Management Plan for the ECS Project
604-CD-002	ECS Operations Concept for the ECS Project: Part 2B - ECS Release B
605-CD-002	Release-B SDPS/CSMS Operations Scenarios for the ECS Project
609-CD-001	Interim Release One (Ir1) Maintenance and Operator's Procedures for the ECS Project
611-CD-004	Mission Operation Procedures - Ver. 2, Rel. 2.0, Drop 4.0 for the ECS Project
613-CD-003	Release B COTS Maintenance Plan for the ECS Project
625-CD-001	ECS Project Training Material Volume 1: Course Outline
625-CD-002	ECS Project Training Material Volume 2: Introduction and System Overview
625-CD-003	ECS Project Training Material Volume 3: Problem Management
625-CD-004	ECS Project Training Material Volume 4: System Administration
625-CD-005	ECS Training Material Volume 5: Network Administration
625-CD-006	ECS Project Training Material Volume 6: Production Planning and Processing
625-CD-007	ECS Project Training Material Volume 7: Resource Planning
625-CD-008	ECS Project Training Material Volume 8: Ingest
420-TP-007	Planning Workbench Detailed Design for the ECS Project
625-CD-009	ECS Project Training Material Volume 9: Data Distribution
625-CD-010	ECS Project Training Material Volume 10: Archive Processing

625-CD-011	ECS Project Training Material Volume 11: Database Administration
625-CD-012	ECS Project Training Material Volume 12: Configuration Management
625-CD-013	ECS Project Training Material Volume 13: User Services
625-CD-016	ECS Project Training Material Volume 16: Science Software Integration and Test
625-CD-017	ECS Training Material Volume 17: System Troubleshooting
IMSV0-OP-GD-001	EOSDIS Information Management System, Users Manual for Release 6.0 of the V0 IMS (April 1996), Hughes STX Corp., Upper Marlboro, MD
IMSV0-PD-SD-002	EOSDIS Information Management System, Messages and Development Data Dictionary, V0 and Release A Message Passing Protocol (1995), Hughes STX Corp. Upper Marlboro, MD

2.3 Information Documents

The following documents are referenced herein, and amplify or clarify the information presented in this document. These documents are not binding on the content of the Release 5A Operations Tools Manual.

Action Request System 2.0, Troubleshooting and Error Messages Guide (1995), Remedy Corporation, Mountain View, CA

Action Request System 2.0, User's Guide for OSF/Motif (1995), Remedy Corporation, Mountain View, CA

AIX Version 4.1 iFOR/LS System Management Guide First Edition (1994), Gradient Technology Inc, 11400 Burnet Rd., Austin Tx 78758-3493

AIX Version 4.1 iFOR/LS Tips and Techniques First Edition (1994), Gradient Technology Inc, 11400 Burnet Rd., Austin Tx 78758-3493

AMASS Overview Version 4.9(1997), EMASS Inc, 10949 East Peakview Ave., Englewood, CO 80111

AutoSys User Manual, Version 3.2, August 1995, AutoSystems Development Lab, PLATINUM Technology, Inc., Boulder, CO

AutoXpert User Guide, Unix BETA Version 1.0, July 1995, AutoSystems Development Lab, PLATINUM Technology, Inc., Boulder, CO

C Language Reference Manual (1995), Silicon Graphics, Inc., Mountain View, CA

ProDev Workshop Environment Guide (1994), Silicon Graphics, Inc., Mountain View, CA

ProDev Workshop User's Guide Volume I: The Debugger, Build Manager, and Static Analyzer (1994), Silicon Graphics, Inc., Mountain View, CA

ProDev Workshop WorkShop User's Guide Volume II: The Performance Analyzer and Tester (1994), Silicon Graphics, Inc., Mountain View, CA

ClearCase Administrator's Manual, Unix Edition Release 2.0 and later (1995), 4000-013-B, Atria Software Inc., Natick, MA

ClearCase Quick Reference Manual, Unix Edition Release 2.0 and later (1995), 4000-013-B, Atria Software Inc., Natick, MA

ClearCase User's Manual, Unix Edition Release 2.0.2 and later (1995), 4000-011-B, Atria Software Inc., Natick, MA

DCE Cell Manager 1.6.2 Overview and User's Guide (1997), Chisholm Technologies Inc, 6805 Capital of Texas Hwy, Austin Tx 78731

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Errors and Corrective Action (AMASS) Version 4.9 (1997), EMASS Inc, 10949 East Peakview Ave., Englewood, CO 80111

Enterprise SQL Server Manager User's Guide, Release 10.0.2 (1995), Sybase, Inc. Emeryville, CA

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Expert Sniffer Network Analyzer Operations (1995), Network General Corporation, Menlo Park, CA

FDDI Overview and Guide to Troubleshooting (1995), Network General Corporation, Menlo Park, CA

Fortran 77, Language Reference Manual (1991), Silicon Graphics, Inc., Mountain View, CA

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IDL Reference Guide, Interactive Data Language (1991), Volumes 1 and 2, Version 4.0, Research Systems, Inc., Boulder CO

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Illustra User's Guide (1995), Illustra Server Rel. 3.2, Illustra Information Technologies, Inc., Oakland, CA

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IQ Installation Guide for Unix Motif (1995), IQ Software Corporation, Norcross, Georgia

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IRIX Networker Administrator's Guide, Silicon Graphics Computer Systems (1995), 007-1458-030, Mountain View, CA

IRIX Networker User's Guide, Silicon Graphics Computer Systems (1995), 007-1458-030, Mountain View, CA

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Microsoft PowerPoint User's Guide, Version 4.0 (1994), Microsoft Corporation

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MIPSpro Fortran 77 Language Reference Manual (1994), Silicon Graphics, Inc. Mountain View, CA

Netscape Navigator Handbook (Version 3.0), S. Kronick, Netscape Communications Corporation, Mountain View, CA

NetWorker Administrator's Guide (1996), Legatto Systems, Inc., 3145 Porter Dr., Palo Alto CA 94304

NetWorker User's Guide (1996), Legatto Systems, Inc., 3145 Porter Dr., Palo Alto CA 94304

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Open Client DB-Library/C Reference Manual (1993) , Sybase Inc., 6475 Christie Avenue, Emeryville, CA 94608

Open Client and Open Server Common Libraries Reference Manual (1993), Sybase Inc., 6475 Christie Avenue, Emeryville, CA 94608

PureDDTS Administrator's Manual, version 3.2, Pure Software Inc., Sunnyvale, CA

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Replication Server Installation Guide (1995), Sybase, Inc., Emeryville, CA

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Tivoli Enterprise Console User's Guide, (1995), Tivoli Systems Inc., Austin, TX

Tivoli Host Management Guide, (1995), Tivoli Systems Inc., Austin, TX

Tivoli Management Platform User's Guide (Release 2.5) , (1995), Tivoli Systems Inc., Austin, TX

Tivoli/Sentry Monitoring Collection Reference Manuals, (1995), Tivoli Systems Inc., Austin, TX

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XRP-II Product Information Manual (1995), HTG, Ft. Worth TX

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XRP-II Tools, Techniques, and Conventions Manual (1995), HTG, Ft. Worth TX

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Z-Mail for Motif Installation Guide, Version 3.2 (1994), Z-Code Software/NCD Software Corporation, Novato, CA

Z-Mail for Motif Reference Manual, Version 3.2 (1994), Z-Code Software/NCD Software Corporation, Novato, CA

Z-Mail for Motif User's Guide, Version 3.2 (1994), Z-Code Software/NCD Software Corporation, Novato, CA

Z-Mail Network License Server Installation and Maintenance Guide (1994), Version 1.8, Z-Code Software/NCE Corporation, Novato, CA

3. Release 5A Overview

3.1 Release 5A Objectives

3.1.1 ECS Mission Support Baseline

The Release 5A ECS system supports the Landsat-7, AM-1, and Meteor SAGE III missions, as shown in Table 3.1.1-1 below. Release 5A also supports the Data Assimilation Office (DAO) at the GSFC DAAC.

Release 5A is designed to assure successful transition to support future releases. Subsequent releases will support future EOS missions, such as EOS PM-1, and will incorporate evolutionary changes such as new processing and storage technologies, new distributed computing infrastructure, and expanded data metaphors and services. Successive releases will provide expanded and increasingly enhanced data search and access, based on feedback from the science community.

Table 3.1.1-1. Mission Baseline

Missions	Instruments	Launch Date
Landsat-7	ETM+	March 1999
EOS AM-1	ASTER, CERES, MISR, MODIS, MOPITT	July 1999
Meteor	SAGE III	July 1999

3.1.2 Release 5A Capabilities

The Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS) capabilities are developed in terms of formal releases. Release 5A, the initial formal release beyond the test bed, provides capabilities that are designed to support the Landsat-7, AM-1, and Meteor SAGE III missions.

Release 5A is deployed at four locations (SMC, and DAACs at GSFC, EDC and LaRC).

A more detailed overview of the Release 5A ECS may be found in the Release 5A Segment/Design Specifications for the ECS Project, 305-CD-500-001.

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4. Description of the ECS Operational Tools

The human-machine interface (HMI) characteristics description of the software tools that the ECS operator uses to perform routine ECS operations is listed by the following major functional areas:

4.1 Computer Systems Administration

4.2 System Monitoring (Problem, Fault, and Performance Management)

4.3 Configuration Management

4.4 Security and Accountability

4.5 Science Software Integration and Testing

4.6 ECS Data Ingest

4.7 Resource Planning

4.8 Production Planning

4.9 Production Processing

4.10 Science Data Archive and Distribution

4.11 User Services

4.12 Common Services

When using this document, the reader should note the following:

- The screens/GUIs presented in this section are samples and often do not reflect the actual window contents seen by the DAAC operator because they depend on hardware configuration, actual server names, directories, etc.
- Basic Unix, Network and application configuration and utilities are not explicitly addressed in this document.
- Except for those programs that are not Motif programs and require an ASCII interface, launching tools from the command line is avoided as much as possible to give operations management the ability to control (a) access to the Unix command line and shell; and (b) reduce the use of the xterm.
- Release 5A directory structure is discussed in DID 612, which is the Programmer's Manual for each of the Release 5A DAACs and the SMC.
- This document references the ECS Baseline Information System web page, URL http://cmdm.east.hitc.com/, in several places for information on the Required Operating Environment. This web page is currently being constructed for the desired information in the ECS Baseline. Until it is put in place, the reader is referred to the DAAC library for hard copies of the desired COTS documents.

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4.1 Computer Systems Administration

This section describes the computer system administration tools used by DAAC operators:

1. Legatto's Networker
2. DBVision
3. AMASS
4. ISQL
5. SQR Report Writer
6. Intelligent Query and IQ Access
7. Sybase Replication Server
8. Global Change Master Directory (GCMD)
9. MIB Browser
10. Mode Manager
11. ECSAssist

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4.1.1 Legatto NetWorker

The Legatto Networker COTS has been upgraded to Version 5.5 in the ECS Release 5A. This version has been verified to be y2k compliant.

Legatto's NetWorker is a set of three components -Administration, Backup, and Recovery - used by system administrators to back up the entire system, with the exception of DBMS files (see Section 4.1.5, "ISQL", for details on backup of DBMS files). The basic configuration is to have a NetWorker Server with a backup device (i.e., Jukeboxes or 8mm tapes) networked to a number of clients which represent the subsystem hosts.

Site-wide system backup is performed by NetWorker. It provides a suite of integrated tools for backup and recovery, archive and retrieval, and hierarchical storage management. The product supports multi-platform networks, contains a motif-based GUI with on-line help, and supports concurrent device support for parallel backup and recovery using up to 16 storage devices. Both scheduled and ad-hoc backups, recoveries and other data management services can be performed by authorized users. NetWorker software consists of two components: a client portion, which runs on the systems to be backed up, and a server portion, which is the system to which the backup devices are connected. The client portion sends the data to be backed up to the server portion which then writes the data out to disk.

NetWorker is used to perform the operator functions listed in Table 4.1.1-1.

Table 4.1.1-1. Common ECS Operator Functions Performed with NetWorker

Operating Function	GUI	Description	When and Why to Use
manage, configure, and monitor NetWorker	• NetWorker Administrator GUI	allows monitoring of server status, devices, sessions, messages, and pending displays	to start NetWorker tasks and monitor server activity
monitor and schedule backup	• NW Backup GUI	• group backup • scheduled backup • incremental backup	to back up client files
recovering backed up files	• NW Recover GUI	retrieves files that have been backed up	to recover backed up client files

4.1.1.1 Quick Start Using NetWorker

This section presents an orientation of NetWorker. For more information, see the *NetWorker User's Guide*, and the *NetWorker Administrator's Guide*, Using NetWorker Windows and Menus.

The documentation used is for version 5.5 of NetWorker.

4.1.1.1.1 Invoking NetWorker From the Command Line Interface

The NetWorker Administrator tool is used to manage and configure the NetWorker environment. To execute NetWorker Administrator from the command line prompt use:

nwadmin <-s server_name> **&**

The NetWorker Backup tool is used to backup files on client machines. To execute NetWorker Backup from the command line prompt use:

nwbackup <-s server_name> **&**

The NetWorker Recover tool is used to recover files on client machines. To execute NetWorker Recover from the command line prompt use:

nwrecover <-s server_name> **&**

Note: The optional <-s server_name> is used only in NetWorker environments that have multiple NetWorker servers.

4.1.1.2 NetWorker Main Screen

Figure 4.1.1-1 shows the nwadmin screen. For more information on the NetWorker Administrator, see the *NetWorker Administrator's Guide.*

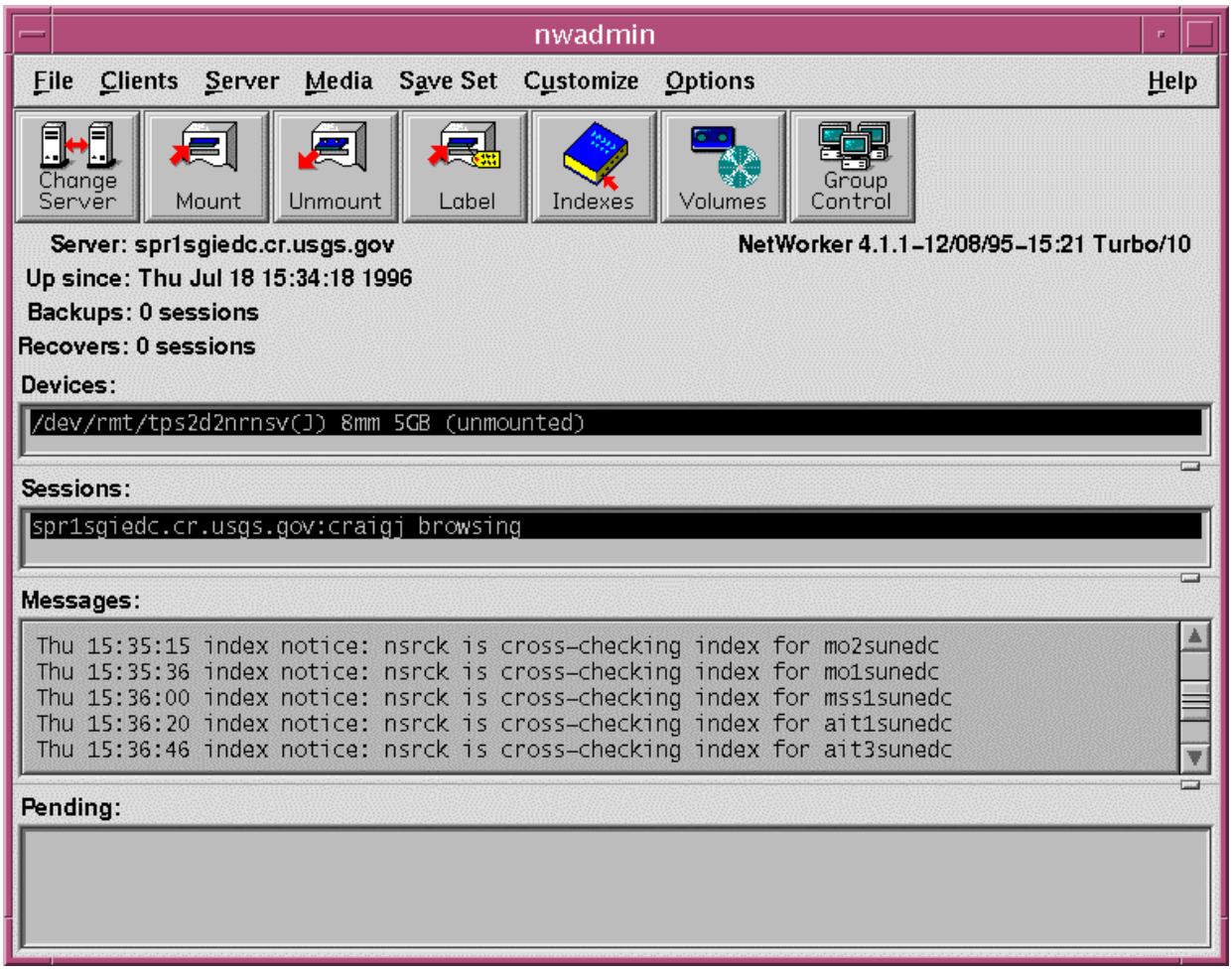

Figure 4.1.1-1. NetWorker Administrator's Screen

Figure 4.1.1-2 shows the nwbackup screen. For more information on NetWorker Backup, see the *NetWorker User's Guide*.

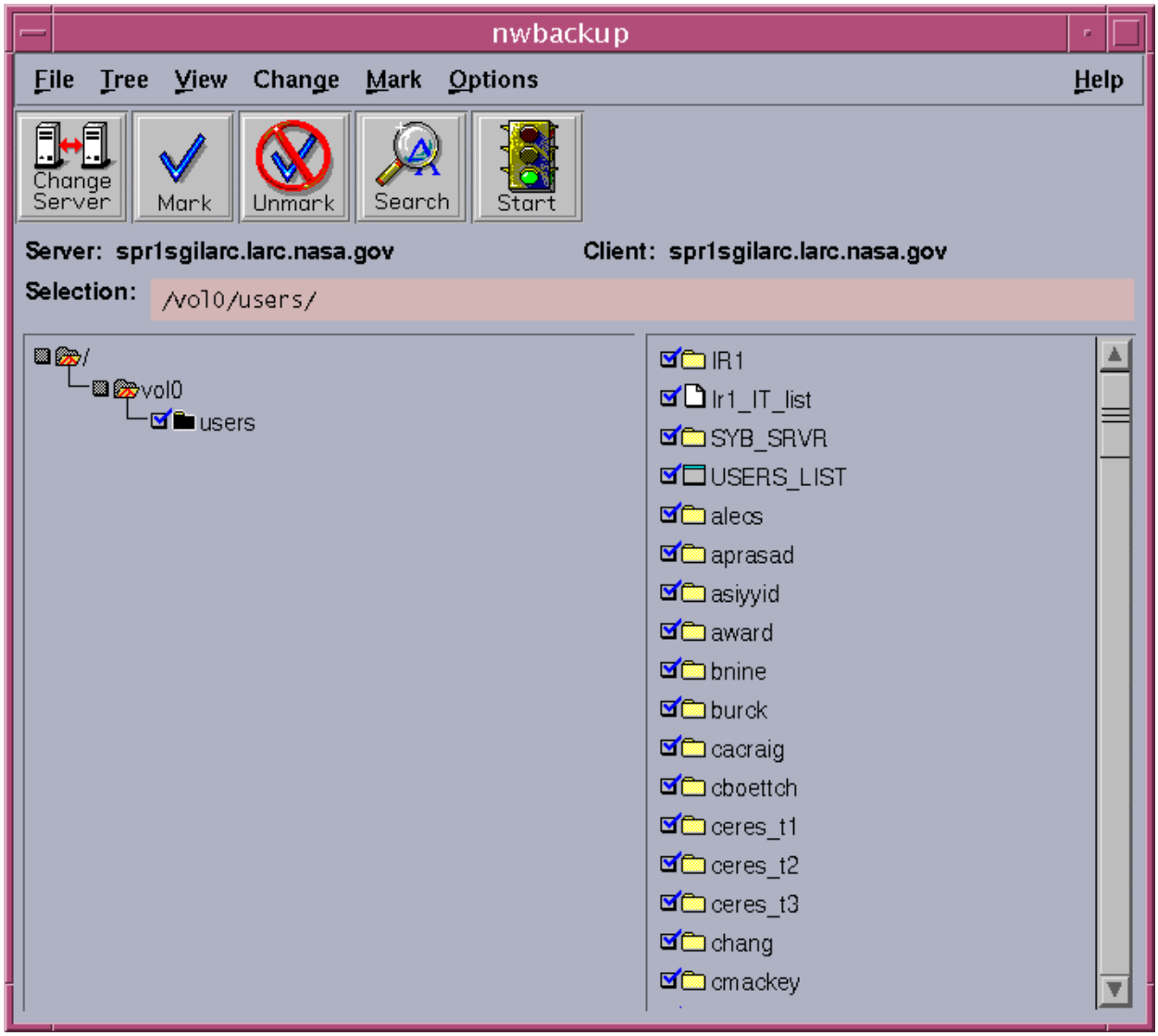

Figure 4.1.1-2. NetWorker Backup Screen

Figure 4.1.1-3 shows the nwrecover screen. For more information on NetWorker Recover, see the *NetWorker User's Guide*.

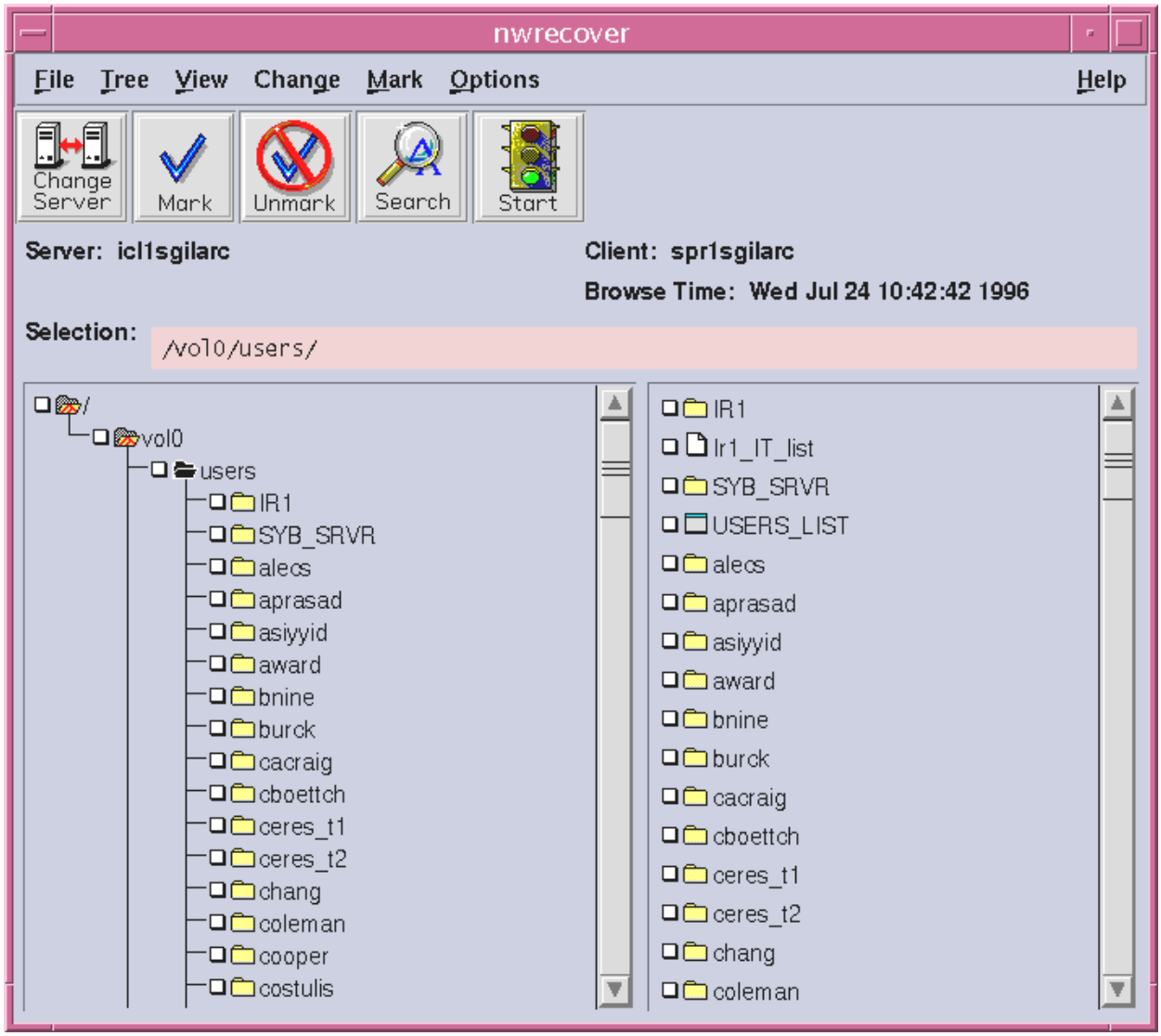

Figure 4.1.1-3. NetWorker Recover Window

4.1.1.3 Required Operating Environment

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled document for each product. To find the documentation for Legatto Networker, refer to the ECS Baseline Information System web page, URL http://cmdm.east.hitc.com/.

4.1.1.4 Databases

The $Installed_dir/nsr/index directory maintains a database of files that have been backed up and the availability of the backup such as tape number and whether it is online or on a volume of tapes that has been migrated. This information is in a proprietary format that can only be read using the nwrecover tool.

4.1.1.5 Special Constraints

None.

4.1.1.6 Outputs

NetWorker provides the capability to print and save contents of a window as a way to maintain records of NetWorker activities and configurations. For more information, see Chapter 3, Using NetWorker Windows and Menus, *NetWorker Administrator's Guide*.

4.1.1.7 Event and Error Messages

See Appendix A: Error Messages, *NetWorker's User's Guide*, and Appendix A: Troubleshooting, *NetWorker Administrator's Guide*.

4.1.1.8 Reports

None.

4.1.2 DBVision (Future Release)

TBS

Note, this is a placeholder for the above tool that will be included in future releases. This tool will also accommodate minor functions of SQL Monitor.

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4.1.3 AMASS

AMASS is a file storage management system (FSMS) for the UNIX operating system. The purpose of AMASS in the EOSDIS Core System (ECS) is to provide an easy-to-use interface to large media archives. Media is defined as tape and or optical drives. In terms of hardware, the FSMS host in the ECS architecture is a Silicon Graphics Inc. (SGI) Challenge XL. There are two main types of media libraries in ECS:

- StorageTek (STK) Powderhorn using Redwood D3 50GB tapes
- EMASS AML using IBM 3590 10GB tapes and/or HP 2600 2.6GB optical drives

STK Powderhorns are used at GSFC, LaRC, NSIDC and EDC. Powderhorns support only tape media. Powderhorns consist of 6 major parts, the ACSLS (Automated Console System for Library Services) which is a Sun Sparc 5 front end controller, the ACS (Automated Cartridge System), CAP (Cartridge Access Port) where tape media are inserted and ejected, the LMU (Library Management Unit) interface unit, LCU (Library Control Unit) to control the robot , CTU (Controller/Transport Unit) racks which hold up to 4 D-3 tape drives and the LSM (Library Storage Module) which includes the robot arms and the tape silo itself. The LSM includes a camera to display operation to the operator and the tape drives. Note that ACSLS is connected to the network via Ethernet.

EMASS AMLs are used at the GSFC and EDC DAACs. AMLs support tape and optical media simultaneously. The AML (Automated Media Library) consists of four major parts, the AMU (Automated Management Unit) which is an IBM OS/2 microcomputer controller for the AML, the Entry Interface Facility (EIF) where media can be inserted or ejected from the AML, the tower which is a multilevel turntable that stores the media, the tape and/or optical drives and the robot(s) which take the media from the tower to a tape drive (which is called a mount) and from the tape drive to the tower (which is called a keep). Note that the AMU is connected to the network via FDDI.

Many ECS AMLs will be running two ‘logical’ jukeboxes because both tape and optical drives will be included. This does not change the operation of the system but the operator must be aware to use commands going to the correct jukebox. By convention, juke 1 has the tape drives and juke 2 has the optical drives.

The software components are more complicated. AMASS itself is the part that the user-of-the-system actually uses. AMASS appears to the user as just another UNIX mount point and to and from which one copies, moves or deletes files using standard POSIX dd, mv or rm commands. An operator may view the contents of the archive, monitor the system, or setup new tapes for use through standard commands found in the *Managing the AMASS File System* (Version 4.9). As of AMASS Version 4.7.1 the volserv program has been replaced by a client/server system called DAS (Distributed Archive Server) 1.3 on the AMLs and ACSLS on the STKs. DAS is the ‘glueware’ program that acts as a network transport for AMASS to communicate directly with the AMU controller software and is loaded on the AMU. Once DAS has been configured correctly, it should only need to be monitored unless there is a change to the hardware or for a software upgrade.

ACSLS combines the functionality of DAS and the AMU software in a single package. Once it has been configured correctly it should only need to be monitored unless there is a change to the hardware or for a software upgrade. Telnet is configured on both AMUs and ACSLSs. Lastly, there is a component that also runs on the SGI but it has no user configurable parts.

AMASS is installed on an SGI. Control information is communicated from the SGI to the AMU using TCP/IP protocols via FDDI. The following diagram shows the basic route that *control* information takes in sending a file to AMASS to an AML or Powderhorn:

1. User/application initiates file transfer to AMASS
2. AMASS receives the file over the network via ftp, dd or cp or locally via dd or cp to amass cache
3. AMASS sends information over the network to the AMU/ACSLS about what tape to load and where to load it.

4a. On an EMASS silo, the AMU rotates the tower to the correct position, sends the robot to retrieve the tape, robot grips and retrieves the media and inserts it into the tape/optical drive to complete the mount.

4b. On an STK silo, ACSLS moves the arm to the media, the hand grips and retrieves the tape and inserts it into the tape drive to complete the mount.

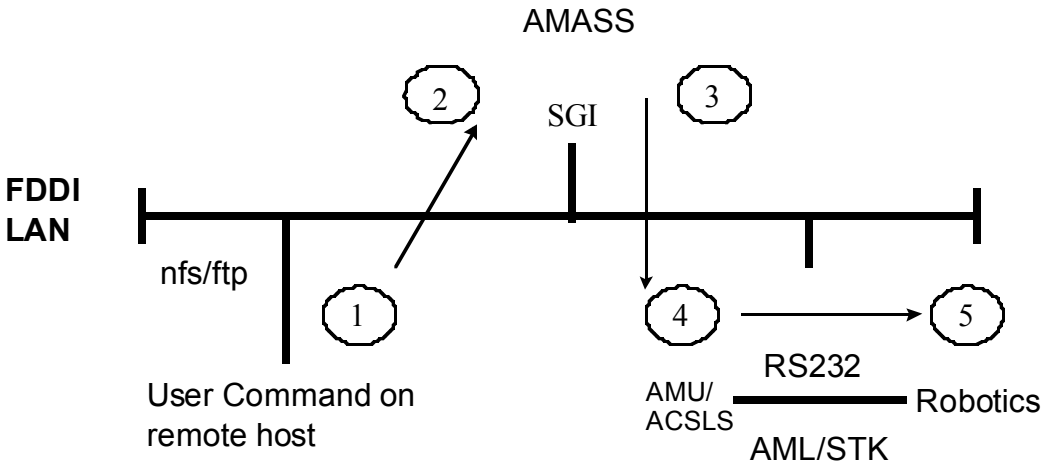

Figure 4.1.3-1. Control Path

The data path is much simpler. A SCSI controller on the SGI is directly connected to the SCSI port on the tape drive. Ideally, each drive gets its own controller. After the above process takes place, AMASS writes the file to the tape in a very simple block by block method. Note that the format of the tape is proprietary and NOT compatible with CPIO or TAR.

AMASS uses both a command line and a GUI program called aawin to perform the system administration/operator functions listed in Table 4.1.3-1.

Table 4.1.3-1. Common ECS Operator Functions Performed with AMASS (1 of 2)

Operating Function	Command or GUI	Description	When and Why to Use
activate or deactivate the AMASS file system	amassstat aawin GUI	displays or toggles the status of AMASS (ACTIVE/INACTIVE)	used to inactivate the file-system for maintenance and/or to reactivate it
add a volume	volnew aawin GUI	introduces a new volume to AMASS and assigns a volume number	to add storage space for data
add space to a volume group	volnew volgroup aawin GUI	adds additional volumes to an existing volume group	when more space is required in an existing volume group
create a space pool	volnew aawin GUI	one or more volumes assigned to a special volume group of ìSPî	to allow AMASS to automatically add space (volumes) to a volume group that has run out of space
create a volume group	volgroup setvolgrp aawin GUI	partitions the volumes in AMASS	to assign volumes for specific purposes within AMASS
delete a volume	volstat voldelete aawin GUI	removes a volume and its files from the archive	to delete a volume and any files it contains
generate a report	amassreport	generates formatted report and/or raw output	to extract information about files and directories from the AMASS index
back up the AMASS index	amassbackup	performs full or partial back up of the AMASS index	any time that the system needs to be backed up other than what AMASSs automatic backup provides
put a drive into service	drivelist drivestat aawin GUI	displays the current status of the drives and to change the status	when an INACTIVE drive is ready to return to service
recover dead space	volspace volcomp volformat aawin GUI	compresses a selected volume	to recover dead space on volumes
reinitialize the AMASS index	refer to the vendor documentation for the command and procedure	clears out the existing index and reinitializes it to an empty index	only when AMASS is not running

Table 4.1.3-1. Common ECS Operator Functions Performed with AMASS (2 of 2)

Operating Function	Command or GUI	Description	When and Why to Use
reintroduce an offline volume	vollist volslot bulkinlet volloc	reintroduces an offline volume to a jukebox	if data from an offline volume needs to referenced for read access
remove a volume or volume group	vollist, voloutlet, volloc aawin GUI	removes a volume or an entire volume group from the jukebox	to make room for new volumes or because data not being used needs to be retained
remove space from a volume group	vgroot #VG setvolgrp /path #VG volgroup	removes space from one volume group to add it to another	when space is needed in another volume group
replace a full backup volume	voloutlet 1, bulkinlet 0, vollabel {to rename} tapelength 1 2 volformat -b 256k 1 amassbackup -fv	initializes a new backup volume and performs a full backup	when the backup volume is 95% full
restore the AMASS database	amassrestore	restores the index either completely or to the point of the last full or partial backup	when the index is corrupt on the magnetic disk do not use the amassrestore command when AMASS is running
retrieve system usage by user	amassreport	displays the number of files and directories owned by a user and the amount of space they take up	to get statistical information on the amount of space used by an individual(s)
retrieve system usage by volume	adf	displays volume group, jukebox reference number, position of volume, amount of used space, number of directories and files on volume, amount of free and dead space	to get statistical information about the usage of a particular volume
reuse a volume	(volcomp, volstat, volclean, volformat aawin GUI	compresses and moves existing data to another volume, then reformats the volume	when a volume contains data no longer needed or contains mostly dead space
take a drive out of service	drivelist, drivestat aawin GUI	displays and changes the status of the drive	when a drive has excessive failures or for maintenance

4.1.3.1 Quick Start Using AMASS

For more information about AMASS, refer to the *Managing the AMASS File System* and *Using The AMASS GUI* guides.

The documentation of AMASS used as a basis and referenced in this section is for AMASS 4.9.1.1

4.1.3.1.1 Invoking AMASS From the Command Line Interface

AMASS is normally started at boot and shutdown when the system is shutdown using scripts in the /etc/rc2.d and /etc/rc0.d directories that are linked to the actual scripts in /etc/init.d. AMASS can also be started and stopped from the command line.

To execute AMASS from the command line prompt use:

/usr/amass/tools/amass_start

To stop AMASS, type:

t1drg01 100> /usr/amass/tools/killdaemons

AMASS startup at boot can be enabled or disabled using the **amass_atboot** command. For more information on accessing AMASS via the command line, refer to Chapter 3, Command Reference, *Managing the AMASS File System*..

The AMASSADMIN GUI can be started from the command line by typing

/usr/amass/bin/aawin

For more information on running the AMASS, refer to *Using The AMASS GUI* guide.

For a description of AMASS commands and the functions they perform, see Chapter 2, Operational Tasks, and Chapter 3 , Commands of the *Managing the AMASS File System*.

4.1.3.2 AMASS Main Screen

AMASS allows the operator to perform a subset of the command line functions, as well as query online index and output results to a file for further processing. For more information on the AMASS, refer to *Using the AMASS GUI* guide.

The window area of the AMASS Main Screen is referred to as ‘The Workroom’.

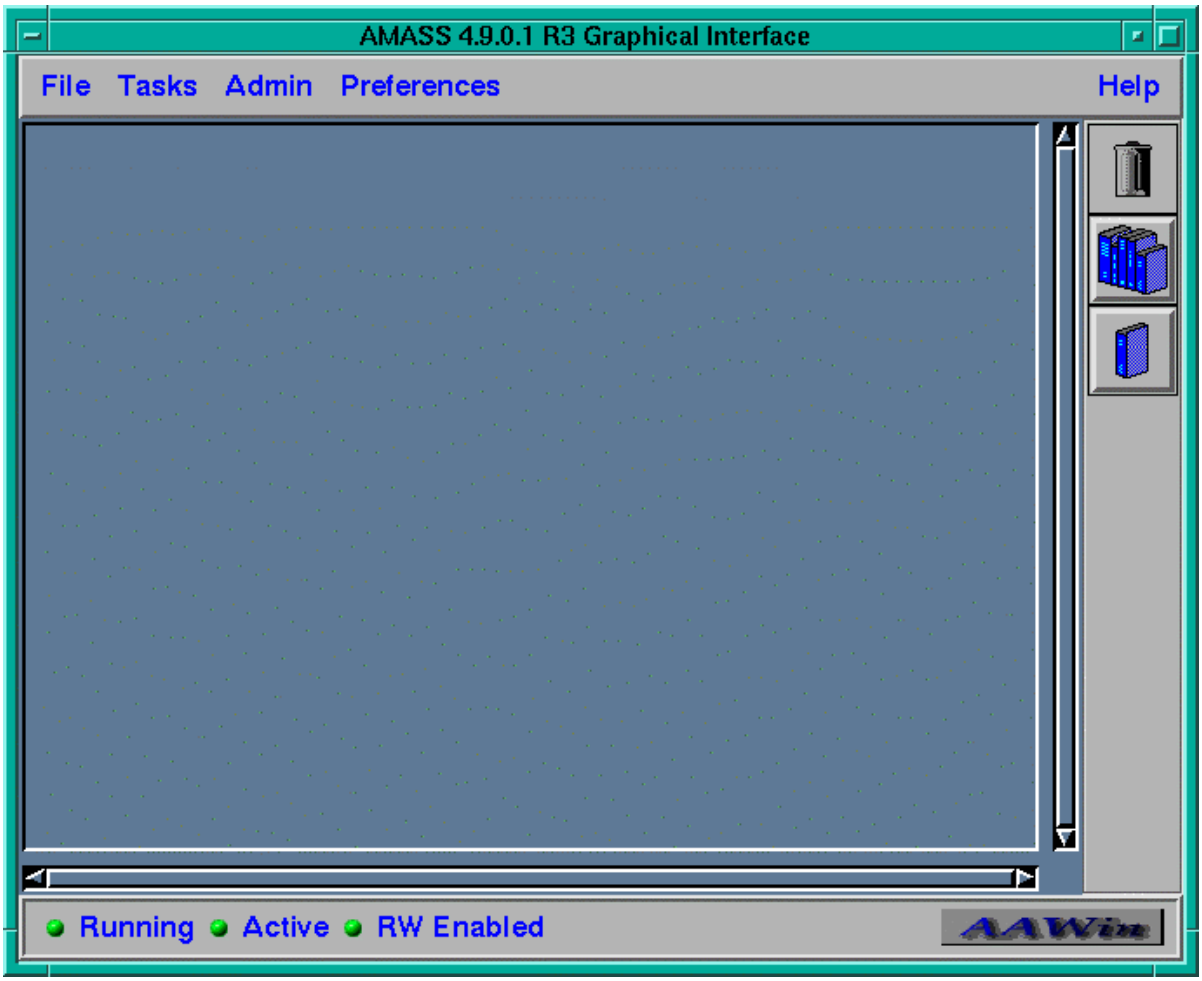

Figure 4.1.3-2. AMASS Main Screen (AAWIN)

AAWIN Pulldown Menu options:

File

Exit: Exits AMASS.

Clear Workroom: Clears the Workroom of all icons.

Tasks

Modify a Volume Group

Modify a Volume

Admin

Scheduler: Opens the Scheduler Status window.

Sysperf: Opens the sysperf window displaying the status of the AMASS activity.

Preferences

Show/Hide Detail Windows: These windows give a brief description of the items the mouse pointer is touching.

Help: Opens the Help Window.

AMASS Utility Bar options (the Utility Bar is a vertical toolbar on the right side of the Main Screen)

Trash Can icon

Volume Group icon displays the volume group icons in the Workroom

Volume icon displays volume icons in the Workroom.

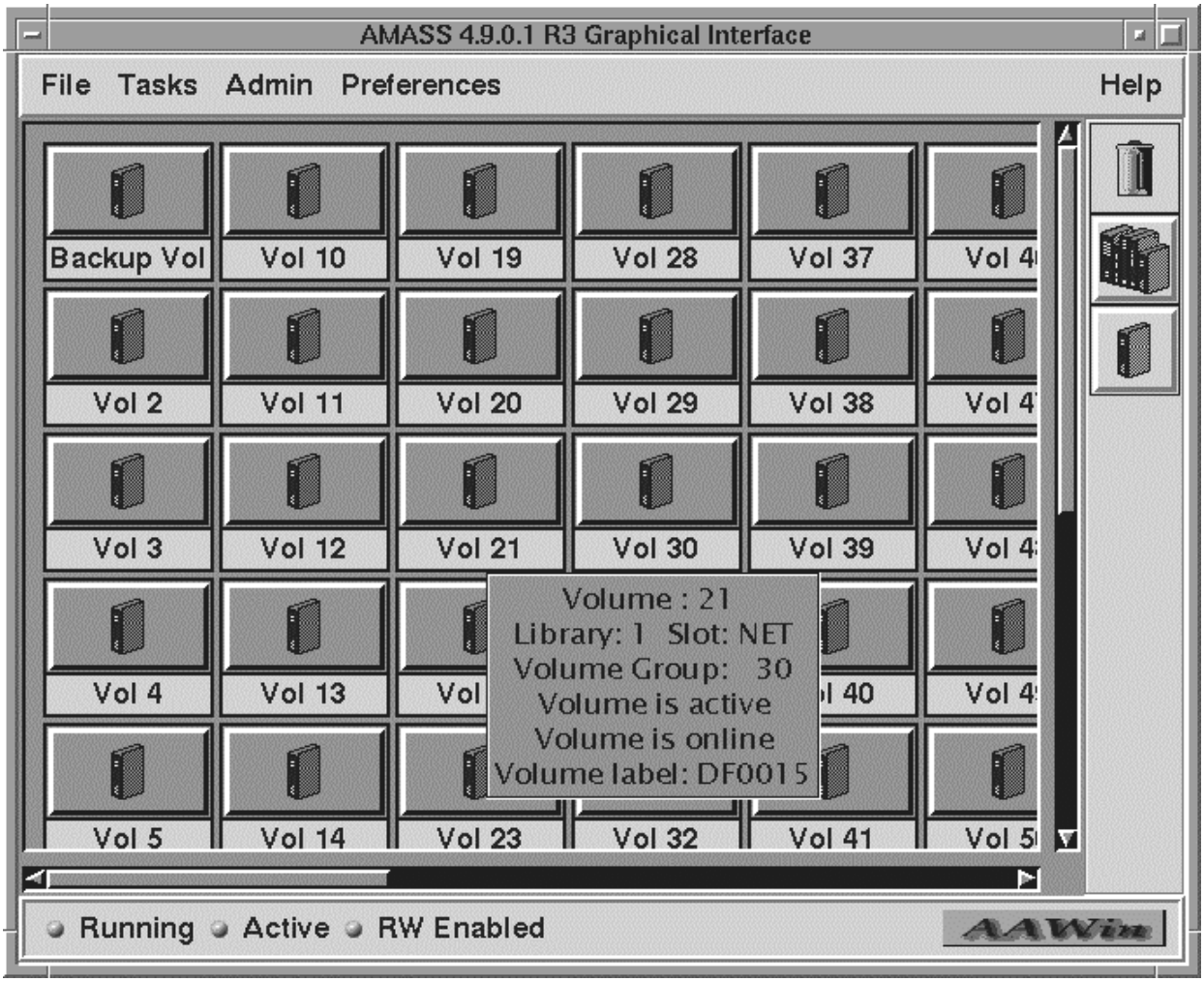

Figure 4.1.3-3. AMASS Main Screen showing selected volumes in the Workroom

4.1.3.3 Required Operating Environment

AMASS requires a UNIX environment. AAWIN requires an X-window server.

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled document for each product. To find the documentation for AMASS, refer to the ECS Baseline Information System web page, URL.

http://cmdm.east.hitc.com/.

4.1.3.3.1 Interfaces and Data Types

The commands and the AMASS GUI that operations staff use to interface with AMASS are described in the *Managing the AMASS File System* and *Using The AMASS GUI*.

4.1.3.4 Databases

The File Storage Management System provided by EMASS Company includes the RAIMA database product. AMASS utilization of the database is transparent to the operator.

4.1.3.5 Special Constraints

None.

4.1.3.6 Outputs

Output from the AMASS consists of the data displayed on the GUI described in Section 4.1.3.2, database updates or additions to the database referenced in Section 4.1.3.4, error and event messages described in Section 4.1.3.7, and reports described in Section 4.1.3.8 which may produce files output in response to user actions or are printed.

4.1.3.7 Event and Error Messages

AMASS generates the following types of messages:

- **Informational (AMASS_I):** Informational messages inform you about a process or situation. The status of AMASS is not changed when you receive an informational message.
- **Warning (AMASS_W):** Warning messages inform you of situations that require attention but do not inhibit the functioning of AMASS.
- **Error (AMASS_E):** Error messages require the immediate attention of the System Administrator to insure the proper functioning of AMASS.
- **System (AMASS_S):** System messages indicate internal errors and should be reported to the EMASS Technical Assistance Center (ETAC)..

AMASS uses the standard syslogd function of the operating system for all of its warning, error and system messages. This facility allows the system administrator to control the output destination(s) of these messages.

With the /etc/syslog.conf file, the operator can control the destination of each of the message types. The syslog.conf file is typically set up to log all levels of AMASS messages to var/adm/messages. The console is typically set up to see all AMASS levels generated by the kernel facility and the system and error level generated by the daemon facility.

For a description of AMASS event and error messages, refer to *Errors and Corrective Action* manual.

4.1.3.8 Reports

AMASS reports provide information of the AMASS holdings using the **amassreport** report generator. Specific reports may be tailored for specific information on the basis of selections by date, file, directory, errors, length, size, or IDs. All reports have the column heading listed in Table 4.1.3-2.

Table 4.1.3-2. Amassreport Column Headings

Heading	Description
Name	Name of file
Parent	Record ID of Parent.
Last Accessed	Last Accessed date on timestamp.
Mode	Permission IDs.
Size	File size in MegaBytes
File ID	File Number.
UID	User ID
GID	Group ID
Last Modified	Date and time showing date the file was last modified.
Vol	File is located on this volume number.

Table 4.1.3.-3 below lists two types of AMASS reports using the **amassreport** command.

Table 4.1.3-3. Amassreport Report Types

Output	Description and Format
formatted report	prints a column header at the top of each page
raw output	prints data without a column header can be used with other utilities to generate custom reports

The content of both types of tables is the same. The raw output type is meant to be used to provide input for further processing to a more complete reporting system.

For information on using **amassreport** see Chapter 3, Command Reference, *Managing the AMASS File System.*

4.1.3.8.1 Sample Report

Below is an example of a formatted amassreport showing volume group 20.

```
NAME                          FILEID   PARENT   UID   GID   LAST MODIFIED   LAST ACCESSED   MODE
VOL   SIZE



file_create              23          2     3137   20   Oct 21 10:06    Nov 06 18:17    drwxrwxr-x
20    0

testfiles1               171147      23    435    20   Oct 22 08:57    Nov 04 06:32    drwxr-xr-x
20    0

random_files             333451      23    435    20   Sep 11  1996    Nov 04 08:04    drwxr-xr-x
20    0

portioned_random_files   1751199     23    3137   20   Sep 25  1996    Nov 04 08:04    drwxr-xr-x
20    0

logs_tape                2975809     2     435    20   Oct 22  1996    Nov 03 23:01    drwxrwxr-x
20    0
```

Figure 4.1.3-4. Amassreport example showing Volume Group 20

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4.1.4 ISQL

Interactive SQL (ISQL) is a stand-alone SQL command parser utility provided with the Sybase SQL Server and is available on all platforms that Sybase is available. ISQL is executed directly from the operating system level, and is used to interact with a SQL server and the databases on a SQL server. It allows for the interactive issuance and execution of Sybase Transact-SQL statements and sends the Transact-SQL commands to the SQL Server, formatting the results and printing them on the standard output. ISQL is used to perform the operator functions listed in Table 4.1.4-1.

Table 4.1.4-1. Common ECS Operator Functions Performed with ISQL (1 of 3)

Operating Function	Command/Script	Description	When and Why to Use
Monitor database and user activity	See Chapter 1 - Overview of System Administration in the *System Administration Guide for SQL Server*	There are various database management activities performed in Sybase SQL Server to keep the databases running for day-to-day operations	Database and user activity is monitored to manage and control various day-to-day operations of the DAAC and to prevent or resolve any unforeseen problems
Provide and control users' database access	• See Chapter 4- Managing SQL Server Logins and Database Users in the *System Administration Guide for SQL Server* • See Chapter 5 - Managing User Permissions in the *System Administration Guide for SQL Server*	• Create user accounts, set account default databases and other account configurable items • Grant proper permissions to user accounts	• It may be necessary to provide access to individual users or groups of users on a temporary, permanent, or on-demand basis • Access to data at the DAAC should be controlled so it is not accidentally deleted, modified, or obtained without permission

Table 4.1.4-1. Common ECS Operator Functions Performed with ISQL (2 of 3)

Operating Function	Command/Script	Description	When and Why to Use
Grant roles and assign various privileges on database objects	See Chapter 2 - Roles in SQL Server in the *System Administration Guide for SQL Server* Chapter 5 - Managing User Permissions in the *System Administration Guide for SQL Server*	Roles and user accounts are necessary to provide access and security to databases under Sybase SQL Server	• Proper database management roles such as SSO (System Security Officer), SA (System Administrator), OPER (Operator) are essential to the proper management of the databases at DAACs • Providing the proper level of privileges to each user of the databases prevents any accidental or unforeseen mishaps with the data (data integrity is also maintained)
Monitor, control, and manage the use of disk space, memory and connections	See Chapter 3 - Managing Physical Resources in the *System Administration Guide for SQL Server* Chapter 6 - Checking Database Consistency in the *System Administration Guide for SQL Server*	• All databases running under Sybase SQL Server are physically stored on various devices and require various amounts of memory based on the usage of data • These resources have to be properly monitored	• Resources for storage and manipulation of data are always at a premium • Proper management of these resources is essential in reducing errors, database crashes and unwanted downtime
Backup and restore databases	• See Chapter 7 - Developing a Backup and Recovery Plan in the *System Administration Guide for SQL Server* • Chapter 8 - Backing up and Restoring user databases, in the *System Administration Guide for SQL Server* • Chapter 9 - Backing up and Restoring the system databases in the *System Administration Guide for SQL Server*	Backup of databases provides for quick recovery and maintenance of data integrity	• Most Database Administrators perform a daily backup of all their databases and perform recovery operations when a database crashes and is unrecoverable by other recovery methods • Proper backup and recovery plans allow for full, quick recovery and zero loss of data • Regular backup of data, is essential in reducing downtime in case of a database crash

Table 4.1.4-1. Common ECS Operator Functions Performed with ISQL (3 of 3)

Operating Function	Command/Script	Description	When and Why to Use
Diagnose system problems	• See Chapter 11 - Diagnosing System Problems in the *System Administration Guide for SQL Server* • Also see the *SYBASE SQL Server Troubleshooting Guide*	• Diagnosing problems with the operation of SQL Server is a regular part of database administration tasks • ISQL is used as a command line tool for interfacing with the SQL Server	• Anytime the SQL server is not performing according to expectation or any database on SQL Server has crashed, the problem(s) must be diagnosed by checking current SQL Server status information • All problems must be properly resolved for successful operation of SQL Server
Fine-tune SQL server performance	See Chapter 12 - Fine-tuning Performance and Operations in the *System Administration Guide for SQL Server*	A continuous operations and administration activity that may involve any of the above activities to make sure SQL Server makes best use of its resources and to gain maximum performance from SQL Server	The SQL Server is fine-tuned whenever storage or data requirements have changed, number of users have changed, new databases are added or existing databases are deleted, any SQL Server settings are modified, or any external environment changes have occurred which may impact the SQL Server

In addition, the DAAC user community may use ISQL to:

- request data from various databases by issuing Transact-SQL statements
- insert, update, or delete data from various databases by issuing Transact-SQL statements
- change their passwords

4.1.4.1 Quick Start Using ISQL

This section presents an orientation of ISQL. For more information on ISQL, refer to the *SQL Server Utility Programs for UNIX*.

Other manuals that the operator may find useful are:

- *System Administration Guide for SQL Server* (SQL Server administration issues)
- *System Administration Guide Supplement* (operating-system specific system administration tasks)
- *Open Client DB-Library/C Reference Manual* (man pages and code samples for the SQL Server interface library, Open Client DB-Library)
- *The SQL Server Installation Guide* (installation procedures for SQL Server)
- *SQL Server Reference Manual Vol. 1 and Vol. 2*(commands and system procedures)

These and other Sybase manuals can be found online at the SyBooks Online Publications page at:

http://www.sybase.com/Offerings/Sybooks/books.html

The documentation of ISQL used as a basis and referenced in this section is for version 10.0.4 contained in ECS Release 4. This tool is a COTS product provided by ECS.

4.1.4.1.1 Invoking ISQL From the Command Line Interface

To execute ISQL from the command line prompt use:

isql

For detailed instructions on how to invoke ISQL see Chapter 3 - Using ISQL in the *SQL Server Utility Programs for UNIX* guide.

4.1.4.2 ISQL Main Screen

There is no ISQL GUI. The ISQL uses the command line interface for operator communications.

4.1.4.3 Required Operating Environment

The utility program ISQL is invoked directly from the UNIX operating system via the command line.

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled document for each product. To find the documentation for ISQL, refer to the ECS Baseline Information System web page, URL http://cmdm.east.hitc.com/.

4.1.4.3.1 Interfaces and Data Types

SQL Server requires an interfaces file to map logical server names to physical network information about those servers. The interfaces file includes server name, network address, and the port number on which the server listens on for queries. For detailed information on the interfaces files please see the *Open Client/Server Supplement* for your operating system.

4.1.4.4 Databases

For more information on Sybase SQL Server databases, refer to the *SYBASE SQL Server System Administration Guide*.

4.1.4.5 Special Constraints

None.

4.1.4.6 Outputs

Output from the ISQL consists of database updates or additions to the databases referenced in Section 4.1.4.4, and error and event messages referenced in Section 4.1.4.7.

ISQL does not provide formatting options for the output, but the **-n** option eliminates ISQL prompts, while -e will include each command issued to ISQL in the output. Other tools can then be used to reformat the output. For further information on formatting ISQL output please see the *SQL Server Utility Programs for UNIX* manual.

4.1.4.7 Event and Error Messages

Sybase SQL Server issues both status and error messages from the SQL Server and ISQL formats them to the designated output. For details on setting output options for ISQL the *SQL Server Utility Programs for UNIX* manual.

For more information on error messages, their cause and corrective actions, refer to the *SYBASE SQL Server Error Messages* manual.

4.1.4.8 Reports

None.

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4.1.5 SQR Report Writer (Future Release)

TBS

Note, this is a placeholder for the above tool that will be included in future releases.

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4.1.6 Intelligent Query and IQ Access (IQ) (Future Release)

TBS

Note, this is a placeholder for the above tool that will be included in future releases.

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4.1.7 Sybase Replication Server

TBS

Note, this is a placeholder for the above tool that will be included in future releases.

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4.1.8 Global Change Master Directory (GCMD) (Future Release)

TBS

Note, this is a placeholder for the above tool that will be included in future releases.

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4.1.9 MIB Browser

The ECS Management Information Base (MIB) Browser is a resource management tool for ECS applications. The MIB is a data file associated with each computer in the ECS system. The MIB defines the parameters used by the ECS performance monitoring components to control access to information in the host computer. A GUI interface allows users to manage these performance variables on ECS applications.

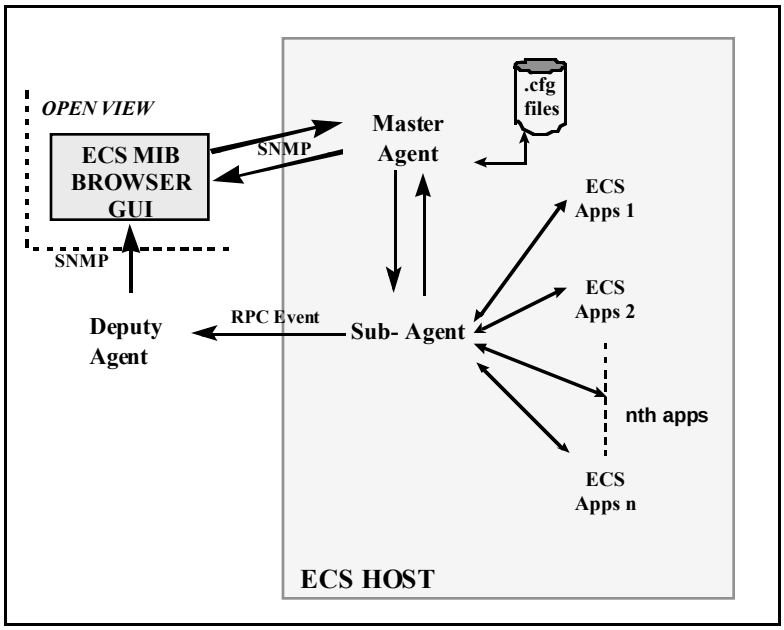

Figure 4.1.9-1. Representation of MIB Browser Operating Environment

Table 4.1.9-1 summarizes the operator functions that the MIB Browser supports.

Table 4.1.9-1. Common ECS Operator Functions Performed with the ECS MIB Browser

Operating Function	Command	Description	When and Why to Use
Determine Management Information available on ECS host computers	Up Tree, Down Tree, Describe	Displays the MIB variables defined for ECS hosts. Provides a description of the variables.	• To identify the variables defined for a specific host. • To determine the meaning of the variable
Display MIB variable values	Start Query, Stop Query	Displays the selected MIB variable values.	• To view or capture the MIB variable values
Display graphs of the Management Information	Graph	Generates a chart of the selected MIB variable values.	• To provide a visualization of the data for analysis.

4.1.9.1 Quick Start Using MIB Browser

4.1.9.1.1 Invoking MIB Browser From the Command Line Interface

The ECS MIB Browser can not be invoked from the command line. The MIB Browser is activated from HP Open View as described in the Section 4.1.9.1.2.

4.1.9.1.2 Invoking MIB Browser From Open View

In the *Open View GUI* , select **Misc** from the Desktop bar and choose MIB Browser from the displayed menu.

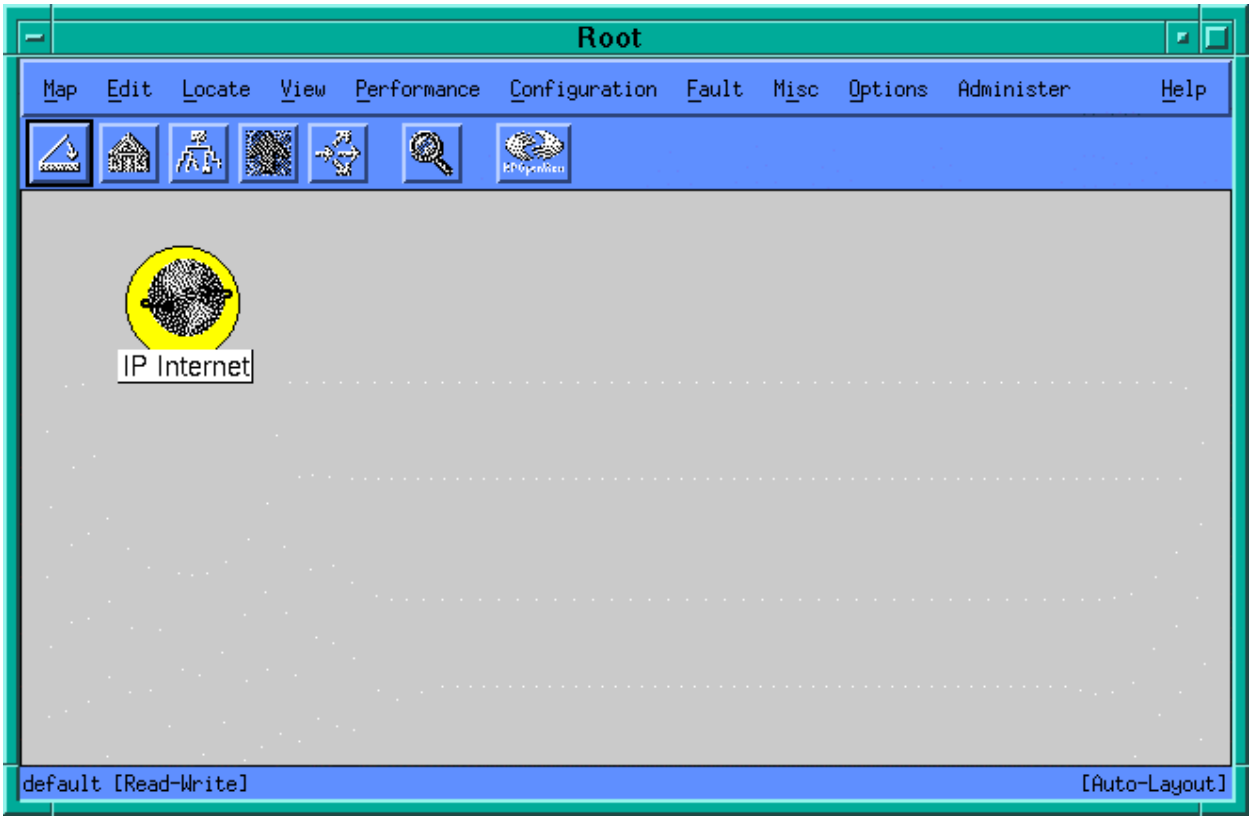

Figure 4.1.9-2. HP OpenView GUI showing Desktop bar

4.1.9.2 The ECS MIB Browser Main Screen

Figure 4.1.9-3 below presents the ECS MIB Browser Main screen.

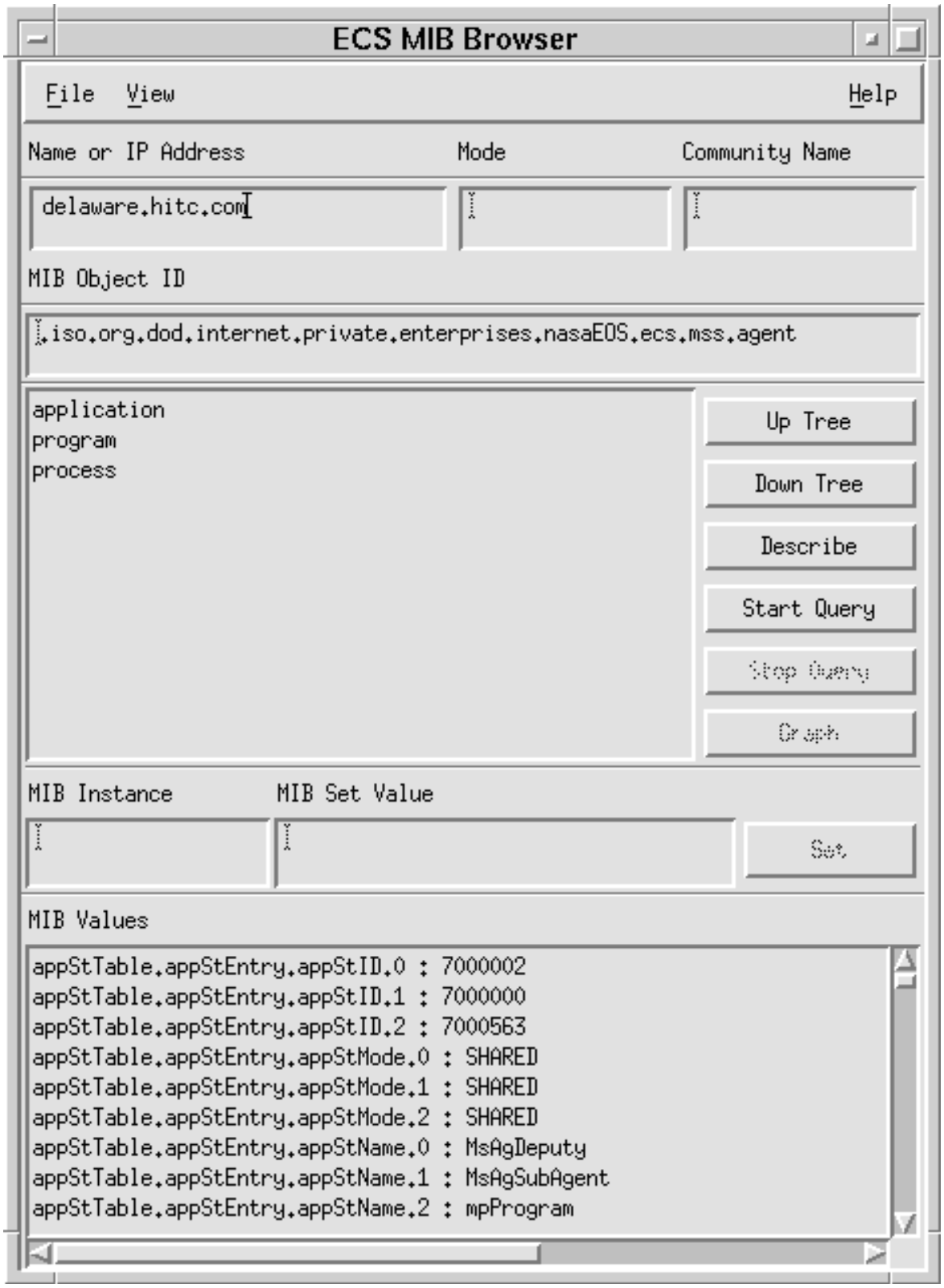

Figure 4.1.9-3. MIB Browser GUI

For a description of the ECS MIB Browser GUI Toolbar, see Table 4.1.9-2 below.

Table 4.1.9-2. ECS MIB Browser GUI Toolbar

File	Click on File on the ECS MIB Browser GUI Toolbar.	Pull down menu showing Save As and Close selections.
Save As	Once in the File, click on Save As.	To save results of ECS MIB Browser in any file or directory.
Close	Once in the File, click on Close.	To exit the ECS MIB Browser.
View	Click on View on the ECS MIB Browser GUI Toolbar.	Pull down menu showing Change Selection and Object Identifier As Text selections.
ChangeSelection	Once in View, click on Change Selection.	Selects the ECS Host. The selected ECS Host will be shown in the Name or IP Address field.
Object Identifier As Text	Once in View, click on Object Identifier As Text.	The host object is identified as Text.
Help	GUI Toolbar	Describes a specific object or an application parameter, and explains its functionality.

For a description of the ECS MIB Browser GUI, see Table 4.1.9-3 below.

Table 4.1.9-3. ECS MIB Browser Field Descriptions (1 of 4)

ECS MIB Browser GUI (main screen	Command/ Script or GUI	Description	When and Why to Use
Name or IP Address	GUI window	Text field (mandatory) Internet Protocol address of the host that is running.	Type the IP address in the window, or select the host using Change Selection in the View. A selected icon's host information will automatically be populated when change selection is invoked.
Mode	GUI window	Text field (mandatory) Mode id of the host	Narrow scope; Values concerning that mode only. Currently not being used.
Community Name	GUI window	Text field Password for each host.	All ECS hosts are required to provide specific Community Name. If already configured in OpenView, this settling is not required.

Table 4.1.9-3. ECS MIB Browser Field Descriptions (2 of 4)

ECS MIB Browser GUI (main screen	Command/ Script or GUI	Description	When and Why to Use
MIB Object ID	GUI window	Text field (mandatory). Shows the root directory	To collect information on a specified application using the MIB Browser, the following must be running Specified application Master Agent Sub-Agent Deputy Agent.
Application Program Process	MIB directory/file structure window	Shows the structure of MIB directory/file in this window. Application is the highest level, followed by Program Level, and lastly the Process Level.	Double clicking on the Application Level, displays the directory and file structure in the window. Highlight the Application. Navigate up or down in the file structure using the Up Tree or Down Tree buttons. User can start at the Application Level (highest level), and then navigate down to the Program Level (middle level) or the Process Level (lowest level). Application Level is divided into five categories. These are: static tables (appStTable), dynamic tables (appDyTable), performance tables (appPerfTable), fault tables (appFaultTable), and configuration tables (appCfgTable). Program Level is divided into four categories, namely: progStTable, progDyTable, progFaultTable, and progCfgTable Process Level is divided into three categories, namely: procDyTable, procPerfTable, and procFaultTable Within each category, there are many parameters. For the dynamic, performance, and fault tables, thresholds and polling intervals can be set.
Up Tree	GUI button	For navigating upwards in the directory and file structure.	Highlight a directory or file, in the Application, Program or Process level in the MIB structure window, and then click on the Up Tree button to navigate upwards.

Table 4.1.9-3. ECS MIB Browser Field Descriptions (3 of 4)

ECS MIB Browser GUI (main screen	Command/ Script or GUI	Description	When and Why to Use
Down Tree	GUI button	For navigating downwards in the directory and file structure.	Highlight a directory or file, in the Application, Program or Process level in the MIB structure window, and then click on the Down Tree button to navigate downwards.
Describe	GUI button	Displays the Describe MIB Variable GUI. This GUI displays the NAME of the application, OBJECT ID, TYPE of application, and DESCRIPTION of the application. It also has a Close button to close the GUI and return to ECS MIB Browser GUI.	Once the Name or IP Address, Mode, Community Name and MIB Object ID fields within the ECS MIB Browser are filled in completely, then additional information about the specific MIB Variable can be attained by pressing the Describe button. This displays the Describe MIB Variable Pop-up (Figure 4.1.9-4).
Start Query	GUI button	Starts the query on the highlighted application in the MIB directory/file structure window of the ECS MIB Browser GUI. Only one application can be selected at one time to perform query on.	Highlight the application in the directory/file structure window. Click on the Start Query button. This will populate the MIB Values screen with the results of the query. Use scroll bars to view complete results, if needed.
Stop Query	GUI button	Stops the query on an application.	Click on the Stop Query button to stop query on an application.
Graph	GUI button	Displays the Graph GUI, and shows query results graphically.	After the results of the query are displayed in the MIB Values screen, click on the Graph button. Graph GUI represents the query results graphically. A helpful visual tool for checking the performance of applications. This displays the Graph GUI Pop-up (Figure 4.1.9-5).

Table 4.1.9-3. ECS MIB Browser Field Descriptions (4 of 4)

ECS MIB Browser GUI (main screen	Command/ Script or GUI	Description	When and Why to Use
MIB Instance	GUI window	Displays the current MIB Instance for the application parameter.	Displays the MIB Instance for an application parameter. Can set it by typing in the MIB Instance field (See Set function).
MIB Set Value	GUI window	Displays the current MIB Value for the application parameter.	Displays the MIB Instance for an application parameter Can set it by typing in the MIB Set Value field (See Set function).
MIB Values	GUI window	Displays the output of the query for a selected application within the Application, Program or Process Level.	Displays the MIB Values for an application. To understand what these application parameters mean, refer to the Help menu or highlight the application parameter inside the MIB Values and click on the Describe button.

4.1.9.2.1 The Describe MIB Variable Pop-up

The Describe button on the ECS MIB Browser main screen displays the Describe MIB Variable Pop-up shown below. This display only pop-up provides the full description of the MIB Variable shown in the **MIB Object ID** of the main screen.

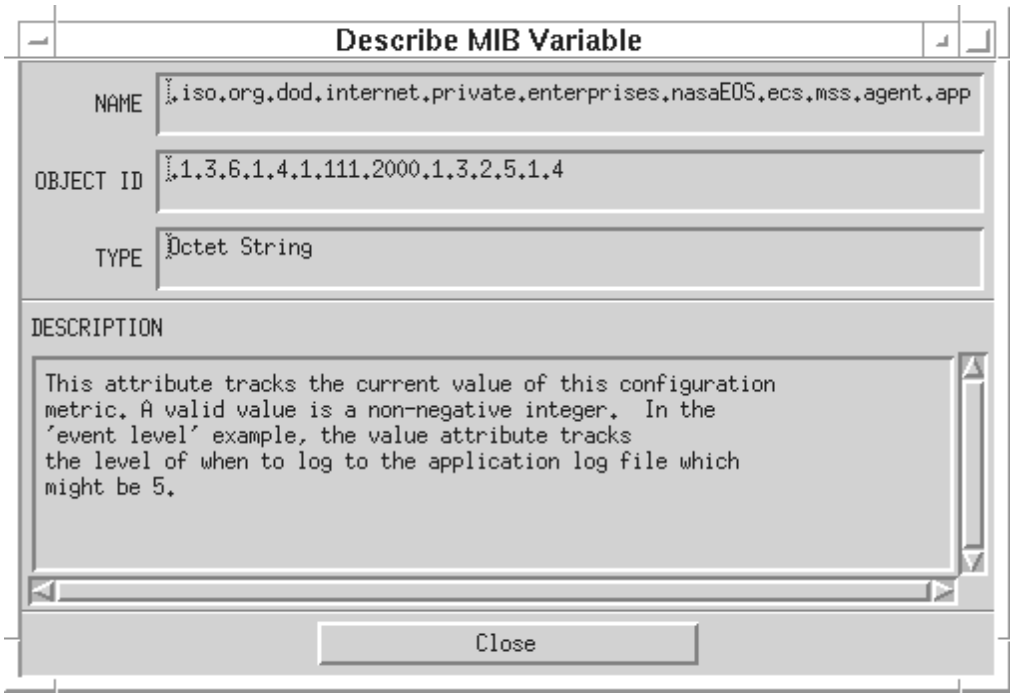

Figure 4.1.9-4. Describe MIB Variable Pop-up

For a description of the ECS MIB Variable Pop-up, see Table 4.1.9-4 below.

Table 4.1.9-4. Describe MIB Variable Field Descriptions

Describe MIB Browser Pop-up	GUI	Description
Name or IP Address	GUI window (display only)	Internet Protocol address of the host that is running.
Object ID	GUI window (display only)	Unique ID of the MIB variable used for storing and accessing the value
Type	GUI window (display only)	The SNMP protocol uses a subset of ASN.1 (Abstract Syntax Notation One) to define the structure of data in a protocol data unit (PDU). SNMP uses the simple abstract data type to define the information content of the PDU which is the packet that is exchanged between an SNMP manager and its agents. The data type can be one of the following: Boolean TRUE or FALSE Integer The set of whole numbers Bit String A sequence of 0 or more bits Octet String A sequence of 0 or more octets Real The set of real numbers Enumerated An explicit list of integer values that a data type can take. Most often the type field in the MIB Browser will be either Integer or Octet String.
Description	GUI window (display only)	Text description of the MIB variable

4.1.9.2.2 HP OPenView Graph Pop-up

The Graph option of the MIB Browser is performed by HP OpenView. See Section 4.2.1.2.2 for more information about the Graph option.

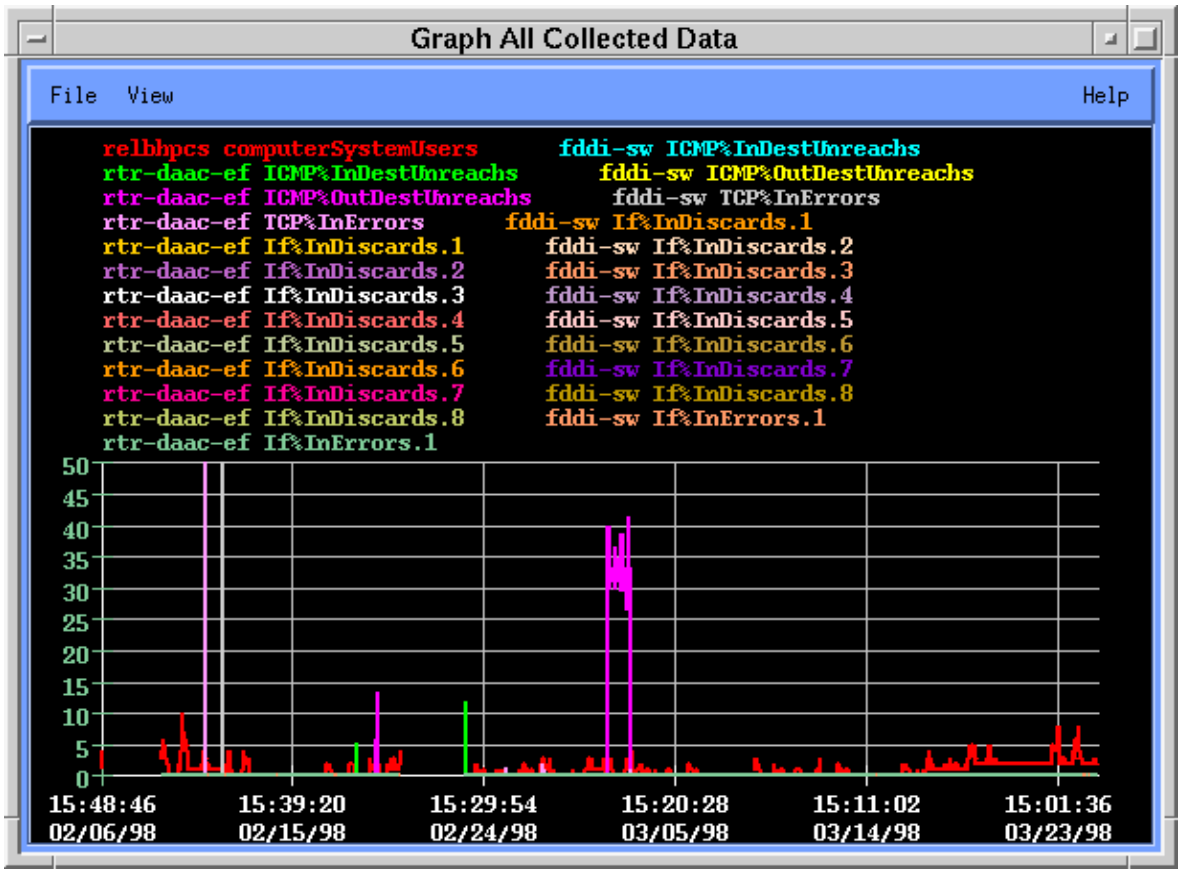

Figure 4.1.9-5. Graph Pop-up

For a description of the Graph Pop-up, see Table 4.1.9-5 below.

Table 4.1.9-5. Graph Field Descriptions

Graph	GUI	Description
Variables	GUI window (display only)	MIB variable are color coded as shown by the color of the variable IDs in the top portion of the Pop-up
Horizontal Axis	GUI window (display only)	The selected time period
Vertical Axis	GUI window (display only)	The numeric value of the MIB variable at the measuring point reflected in the horizontal axis.

4.1.9.3 Required Operating Environment

MIB Browser requires Open View running in the UNIX environment. The ECS MIB Browser GUI is only accessible from within the Open View.

For information on the operating environment, tunable parameters and environment variables of MIB Browser refer to the 920-TDx-013 "Custom Code Configuration Parameters" documentation series . The "x" refers to the installed location, e.g. 920-TDG-013 is for GSFC DAAC.

4.1.9.3.1 Interfaces and Data Types

This Tool exchanges data of various types through interfaces within and external to ECS. Table 4.1.9-6 lists interfaces for Release 4. The MIB Browser utilizes two protocols for accessing the MIB. To **Get** variables (for monitoring performance parameters), it uses Simple Network Management Protocol (SNMP), and to **Set** variables (e.g., thresholds), it uses Distributed Computing Environment (DCE) Protocol. (The Set capability is not employed in the current release.)

Table 4.1.9-6. Interface Protocols

Interface	Type of Primary Interface Protocols	Type of Backup Interface Protocols	Comments
SNMP	Inter-computer	N/A	Used to **Get** variables
DCE	intra-system	N/A	Used to **Set** variables

4.1.9.4 Databases

No database is associated with or used by the ECS MIB Browser. The ECS MIB Browser reads and compiles the ECS MIB located in the **/var/opt/ov/share/snmp-mibs** subdirectory on the HP Open View platform. This MIB is used to query the ECS hosts for data about the ECS applications at each host. The query identifies the data Types (see Table 4.1.9-4) to be returned from the host. The data values for the MIB objects are collected dynamically from the hosts by the agents/subagents in response to a query. The agents/subagents determine the location of the data values from the query and package the response based on the data Types.

4.1.9.5 Special Constraints

Necessary setup required to access information on any ECS Host, using ECS MIB Browser GUI:

1. HP OpenView must be running.
2. A Master Agent should be running in the background (e.g., EcMsAgAgent.
3. A Sub-Agent must be running in the background (e.g., EcMsAgSubAgent), and should be linked to Master Agent and monitoring ECS Applications (Apps).
4. A Deputy Agent should be running in the background (e.g., EcMsAgDeputy), which will direct Remote Procedure Calls (RPC) from the sub-agent to the ECS MIB Browser, using the SNMP. (Not necessary unless SETs are employed)
5. ECS application(s) must be running, in order to collect information.

The proper community string must be entered in the community Name field of the ECS MIB Browser GUI. This is the token or password that permits the operator to gather data from the ECS host. Different community values can be used to obtain privileges to all or part of the MIB. Operators must obtain the proper community string from the System Administration personnel. This may not be necessary if OpenView is configured with the proper community name by default in the /etc/SnmpAgentid/Snmpd.conf file. No string would then be needed.

4.1.9.6 Outputs

Outputs consist of the information displayed on the screens discussed in Section 4.1.9.2 and messages from **stout** and **stderr** which are redirected to the log file found in the **/usr/ecs/shared/custom/logs** subdirectory.

4.1.9.7 Event and Error Messages

Error messages are sent to **stderr** and redirected to the log file described in Section 4.1.9.6. Tis is for Deputy only; custom code messages go to stdout/err.

4.1.9.8 Reports

None.

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4.1.10 Mode Manager

The Mode Manager is the tool for controlling the Mode Management Service (MMS), a custom developed ECS service which is tightly integrated with HP OpenView (see section 4.2.1, HP OpenView). It allows for the configuration of ECS applications in one operational mode and a variety of support modes in the training and test area. The MMS incorporates the mode management user interface directly into the HP OpenView GUI, providing methods to activate and deactivate a mode. In addition, it provides a mode specific user interface for accessing CSS life-cycle control (startup and shutdown). Monitoring capabilities are provided within HP OpenView and are enhanced to reflect mode specific status of software system, subsystem, application, program, and process level entities. Hardware is mode independent so its status is reflected within every mode in which it is configured. HP OpenView graphically supports multiple modes through the use of separate sub-maps and symbol labels. The map can have any number of sub-maps defined that decompose the basic high level map representation. Each mode has its mode specific map (and associated sub-maps) predefined to recognize and support the hardware and software components that are supporting the given mode.

Table 4.1.10-1 summarizes the operator functions that the Mode Management Service supports.

Table 4.1.10-1. Common ECS Operator Functions Performed with the Mode Management Service

Operating Function	Command	Description	When and Why to Use
Add an Active Mode	Add	Adds a mode in the display of Available Modes to the Active Mode display and List	When a previously not active mode is to be activated.
Remove an active mode	Remove	Removes a mode in the Active Mode Display and List and restores it to the Available Mode display and List.	When a mode is to be made inactive.
Insert a new mode	Insert Active Mode	Puts a new mode in the Active Mode Display.	When it is necessary to create a new active mode.
Activate new mode	Rediscover	Shortcuts the subagent rediscovery process and forces the new mode into service across the network.	When a new mode is placed in service and must be activated on all hosts.
Update the Available Modes List	Refresh	Forces an update to the Available Modes List.	When all the hosts have to be made aware of a new mode.

4.1.10.1 Quick Start Using Mode Management Service

Mode Manager is started as part of the system start-up. It may be started from HP Openview (See Section 4.1.10.1.3 below). The Mode Manager operator interface consists of a single Main screen, the (ECS Mode Manager) and a confirmation dialog (pop-up). The ECS Mode Manager Main Screen is run on each ECS machine that has ECS Modes applied.

4.1.10.1.1 Invoking Mode Management Service From the Command Line Interface

The ECS Mode Management Service can not be invoked from the command line. The ECS Mode Manager is activated from HP Open View as described in the Section 4.1.10.1.2.

4.1.10.1.2 Invoking Mode Management Service From Open View

In the *Open View Main Screen*, select **Misc** from the Desktop bar and choose ECS Mode Manager from the displayed menu.

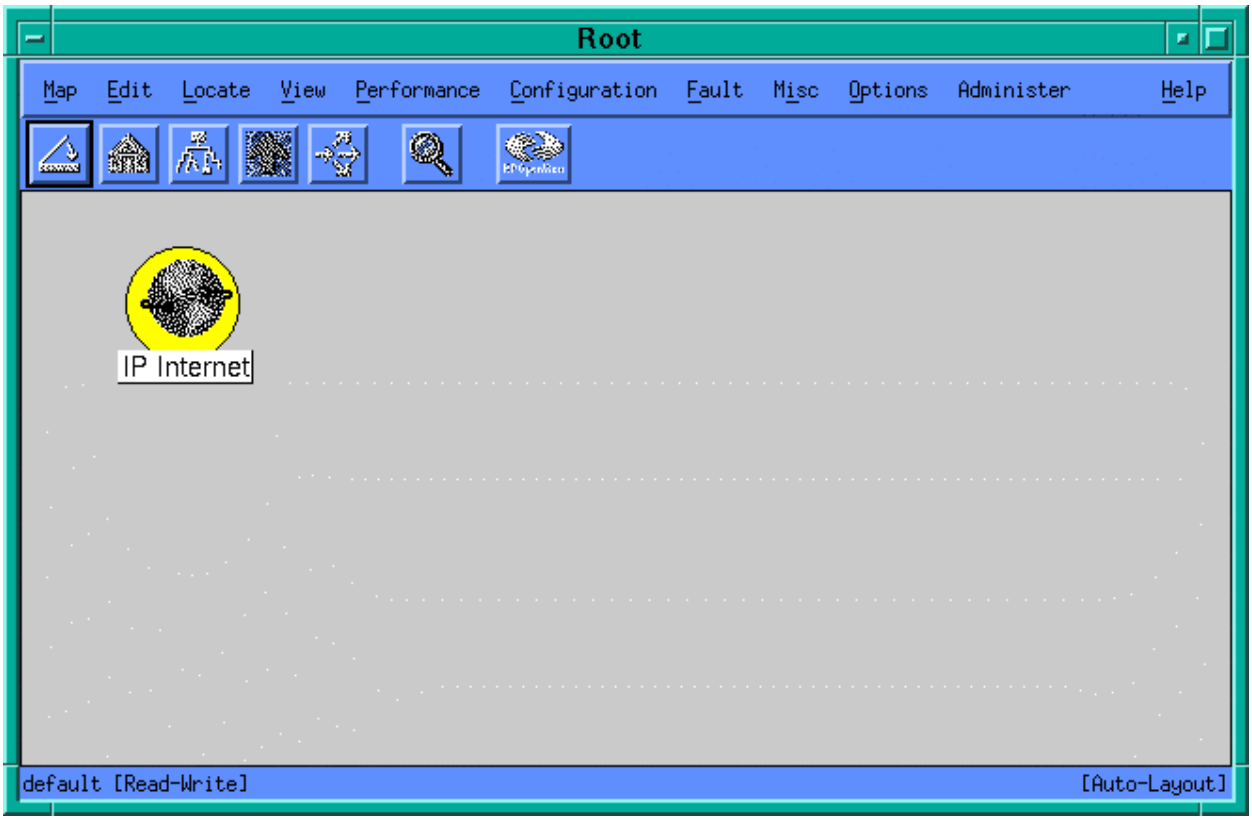

Figure 4.1.10.-1. HP OpenView Main screen showing Desktop bar

4.1.10.2 The ECS Mode Management Service Main screen

Figure 4.1.10-2 presents the ECS Mode Manager Main screen.

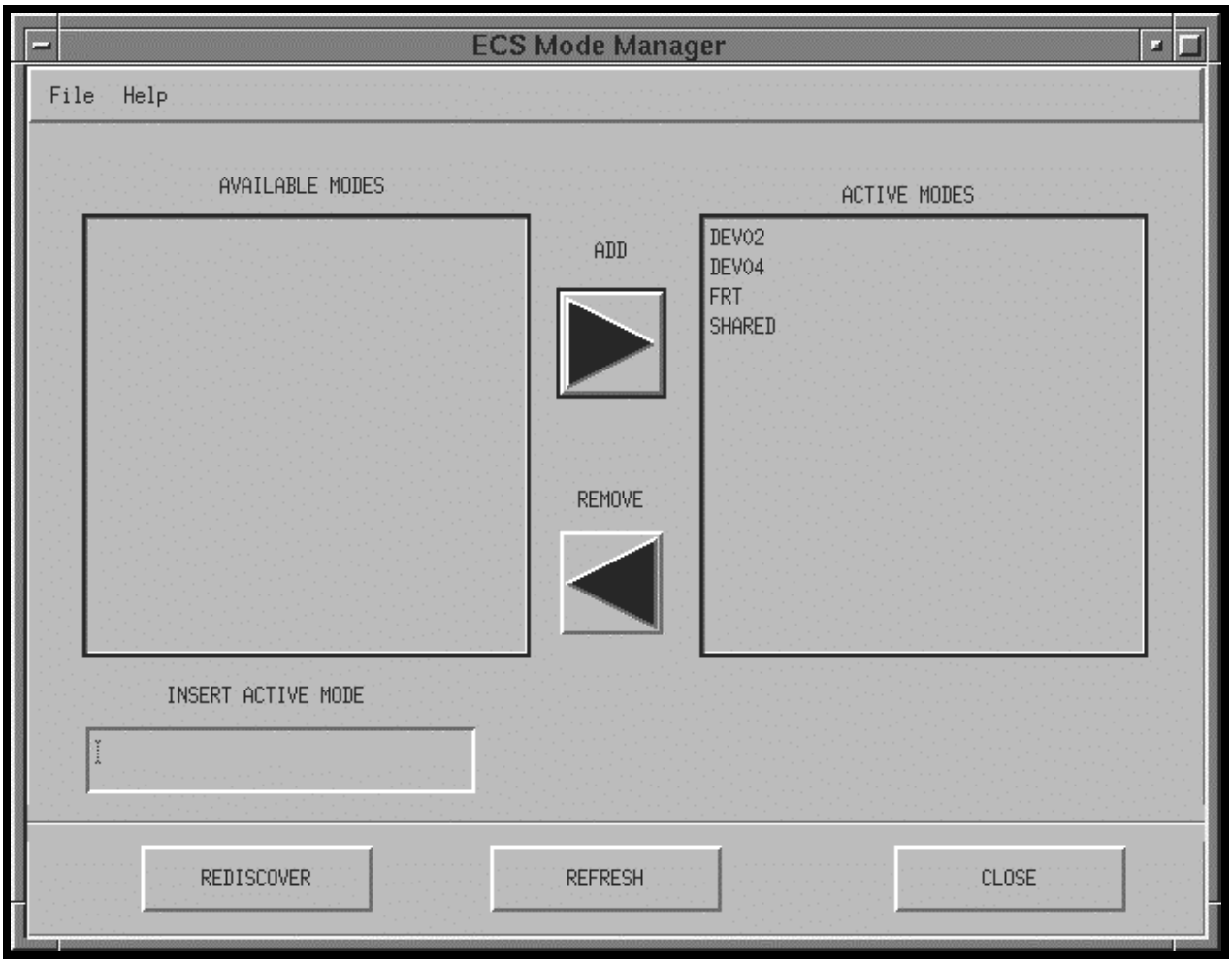

Figure 4.1.10-2. ECS Mode Manager Main Screen

For a description of the Mode Management Service Toolbar, see Table 4.1.10-2 below.

Table 4.1.10-2. Mode Management Service Main Screen Options and Fields

Option/Field	Action	Description
File menu	Click on File on the Mode Manager Main screen Toolbar.	Pull down menu showing Save As and Close selections.
Save As	In the File menu, click on Save As.	To save results of ECS Mode Manager in any file or directory.
Close	In the File menu, click on Close.	To exit the ECS Mode Manager.
Help menu	Click on Help on the Mode Manager Main Screen Toolbar.	Describes a specific object or an application parameter, and explains its functionality.
AVAILABLE MODE field	List of the available modes from the Available Mode List. (Not implemented in this release)	The Available Mode List and Active Mode List are supplied by the Network Management Platform
ADD button	Adds one or more modes from the Available Mode List to the Active Mode List.	Select (highlight) the mode(s) to be entered into service before clicking the Add button.
ACTIVE MODES field	List of the active modes from the Active Mode List.	The Available Mode List and Active Mode List are supplied by the Network Management Platform
REMOVE button	Removes a mode(s) from the Active Mode List.	Select (highlight) the mode(s) to removed from service before clicking the Remove button. The selected modes are moved to the AVAILABLE MODE pool. Since no mode can be removed from service while the mode is in use, an hourglass popup window is displayed while checking to see that no servers are running in that mode. If there are, a dialog box will indicate which servers are still running. Otherwise, the mode is removed.
INSERT ACTIVE MODE field	Manually put a new mode into service	When an available mode is not discovered.
REDISCOVER button	Alerts all ECS hosts subagents that a new mode is entered into service.	Forces all ECS subagents to check for a new mode. This will add or remove a submap hierarchy for the mode being added or removed.
REFRESH button	Update the available modes list.	Forces an update of the mode label in the available modes list. This shortcuts the subagent discovery process which would normally provide automatic update of the list.
CLOSE button	Terminate the Mode Manager session.	A dialog box (see section 4.1.1.2.1) will ask for confirmation from the user.

4.1.10.2.1 The Mode Manager Question Dialog

The Mode Manager Question Dialog is displayed in response to the **Close** button on the Mode Manager Main screen. This dialog verifies that the operator intends to **Close** (exit) the Main screen.

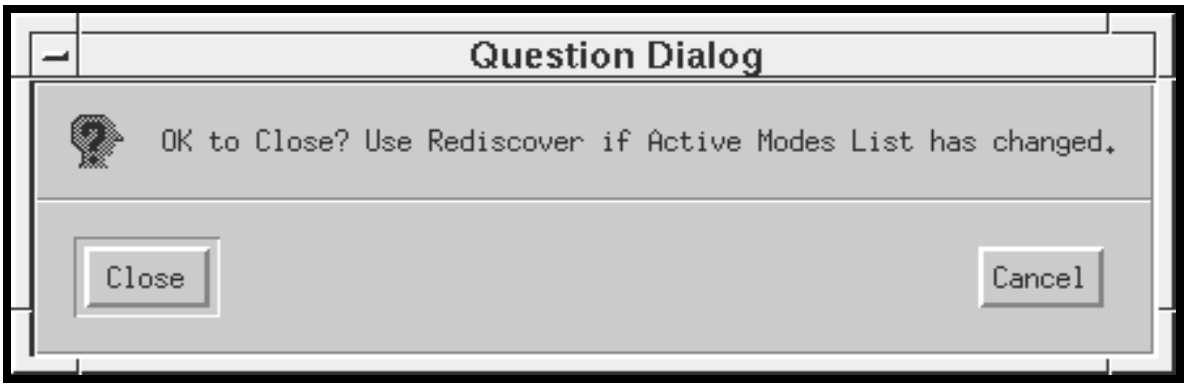

Figure 4.1.10-3. Mode Manager Question Dialog

For a description of the ECS Mode Manager Question Dialog, see Table 4.1.10-3 below.

Table 4.1.10-3. Mode Manager Question Dialog Field Descriptions

Option/Field	Action	Description
CLOSE button	Click on button	Confirm that the Mode Manager Main screen is to be CLOSEd.
CANCEL button	Click on button	Cancel the effect of the CLOSE button on the Mode Manager Main screen.

4.1.10.3 Required Operating Environment

Mode Management Service requires Open View running in the UNIX environment..

For information on the operating environment, tunable parameters and environment variables of Mode Management Service refer to the 920-TDx-013 "Custom Code Configuration Parameters" documentation series. The "x" refers to the installed location, e.g. 920-TDG-013 is for GSFC DAAC.

4.1.10.3.1 Interfaces and Data Types

This Tool exchanges data of various types through interfaces within and external to ECS. Table 4.1.10-4 lists interfaces for Release 4. The Mode Management Service utilizes DCE for communication with the Subagents when Rediscover is invoked, and OV API calls for communication with HP OpenView.

4.1.10.4 Databases

No database is associated with or used by the ECS Mode Management Service. The Active and Available Modes Lists are flat files used by the Mode Manager GUI.

4.1.10.5 Special Constraints

Necessary setup required to access information on any ECS Host, using ECS Mode Manager GUI:

1. HP OpenView must be running.
2. A Sub-Agent must be running in the background (e.g., MsAgSubAgent).

A Deputy Agent should be running in the background (e.g., MsAgDeputy). The Network Management Platform will export the Modes List subdirectory to the **/tools/CMS** mount point. All ECS hosts will mount **/tools/CMS** to access the single copy of the Active and Available Mode Lists.

4.1.10.6 Outputs

Outputs consist of the information displayed on the screens discussed in Section 4.1.10.2 and messages to **stout** and **stderr.**

4.1.10.7 Event and Error Messages

Error messages are sent to **stout** and **stderr**.

4.1.10.8 Reports

None.

4.1.11 ECSAssist

The ECS Assistant (ECSAssist) is a custom program that simplifies the process of installation, testing and management of ECS. This utility is basically an installation tool that has practical application in the operations environment. The tool is for use in installing software and maintaining the information related to that software. Only the Subsystem Manager function of ECSAssist should be used in the ECS operational environment.

Table 4.1.11-1 summarizes the functions that ECSAssist supports.

Table 4.1.11-1. Common Tasks Performed with ECSAssist

Task	Description	When and Why to Use
Subsystem Manager actions	Selections on the Subsystem Manager's screen, see section 4.1.11.2.1	Installing software and performing maintenance on software parameters.
Cleanup	Removes CDS entries.	When it is necessary to remove a CDS entry
Database	Used to install, drop, patch, update subsystem specific databases.	When database updates or upgrades are implemented. See section 4.1.11.2.1.1 .and 4.1.11.2.1.1.1 .
Install	Used to install ECS custom software into the selected mode.	As necessary to install software. . See section 4.1.11.2.1.2 .
Kill	Kills	Remove the programs selected in the **Component**, **Application**, **and Executables** fields.
Mkcdsentry	Makes CDS entries for servers within the selected component.	As necessary to provide CDS entries. . See section 4.1.11.2.1.3 .
Mkcfg	Creates CFG, ACFG and PCFG files for selected components.	When installing or updating software components. . See section 4.1.11.2.1.4 .
Monitor	Monitors any server activity.	As desired for monitoring. See section 4.1.11.2.1.5 .
Package	Not available in Version 2.0.	
Stageinstall	Used to capture the location of the delivered software staging area.	A desired to identify a staging area. See section 4.1.11.2.1.6 .
Start	Used to start servers within the selected component.	When HP OpenView is not available to perform this action..
Viewlog	Used to view server log files.	As desired to view log files. See section 4.1.11.2.1.7 .
Uninstall	Not available in Version 2.0.	
ESDT Manager	Not available in Version 2.0.	
Mode Manager	Not available in Version 2.0.	

4.1.11.1 Quick Start Using EcsAssist

ECS Assist is a custom software product for ECS. Its origin as a development tool provides "fallback" functionality for other tools, such as HP OpenView.

4.1.11.1.1 Invoking EcsAssist From the Command Line Interface

To execute ECSAssist from the command line prompt use the following procedure:

setenv **DISPLAY** <current_host>

setenv ECS_HOME /usr/ecs

setenv TK_LIBRARY /tools/lib/tk4.2

Mount point called **/tools** must be mounted.

File **/tools/common/ea** must exist in the path. (This can be set in the **.cshrc** or **.kshrc** file)

EA or, if this alias is not available, **EcCoAssist**

A screen labeled "Thanks for choosing ECS Assistant" will appear for 5 seconds.

4.1.11.2 ECSAssist Main Screen

The ECSAssist Main Screen shown in Figure 4.1.11-1 identifies the user (operator) and host machine. From the ECSAssist Main Screen the operator may select the ECSAssist functions described in Table 4.1.11-2 below.

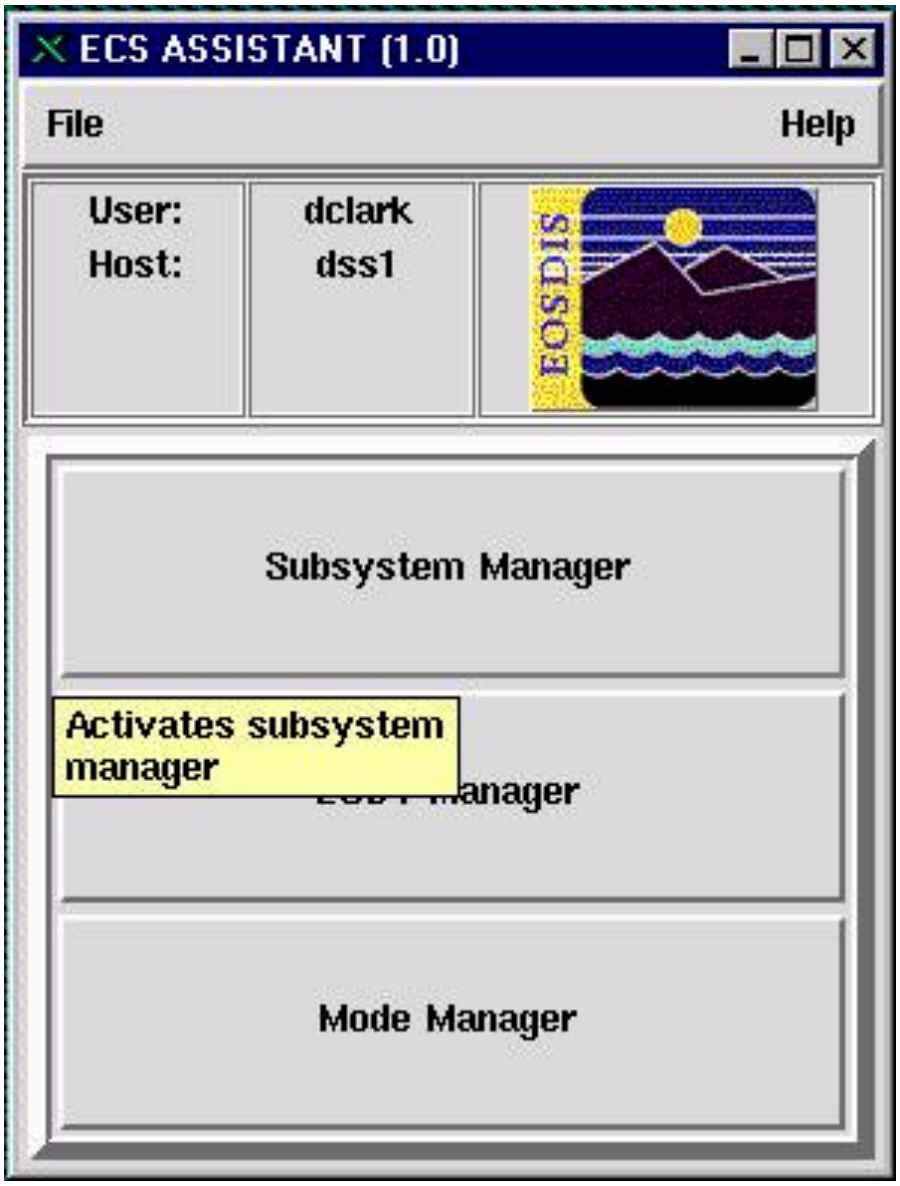

Figure 4.1.11.-1. ECSAssist Main Screen.

Table 4.1.11-2 below summarizes the menus and options available on the ECSAssist Main Screen.

Table 4.1.11-2. ECSAssist Options and Field Descriptions

Option/Field	Action	Description
File		
View Task Output file	In the File menu, click View Task Output File.	Allows users to view and/or print the results of any executed tasks.
Preferences	In the file menu, click Preferences.	Allows users to select preferences.
Exit	Terminate use of tool	To Quit tool
Help	Click on Help on the Subsystem Manager Screen Toolbar.	Pulls down menu showing “Contents”, “Read Me” and “About” selections.
User: Host: (labels)	Provides labels for the field to the right.	Display only
User: Host: (display)	Displays the current host and user.	Automatically displayed.
Subsystem Manager	Perform software installation and maintenance functions.	See Section 4.1.11.2.1
ESDT Manager	Not available in Version 2.0.	
Mode Manager	Not available in Version 2.0	

4.1.11.2.1 The ECSAssist Subsystem Manager screen

In the ECSAssist Main Screen select **Subsystem Manager**.

Figure 4.1.11-2 below presents the ECSAssist Subsystem Manager screen.

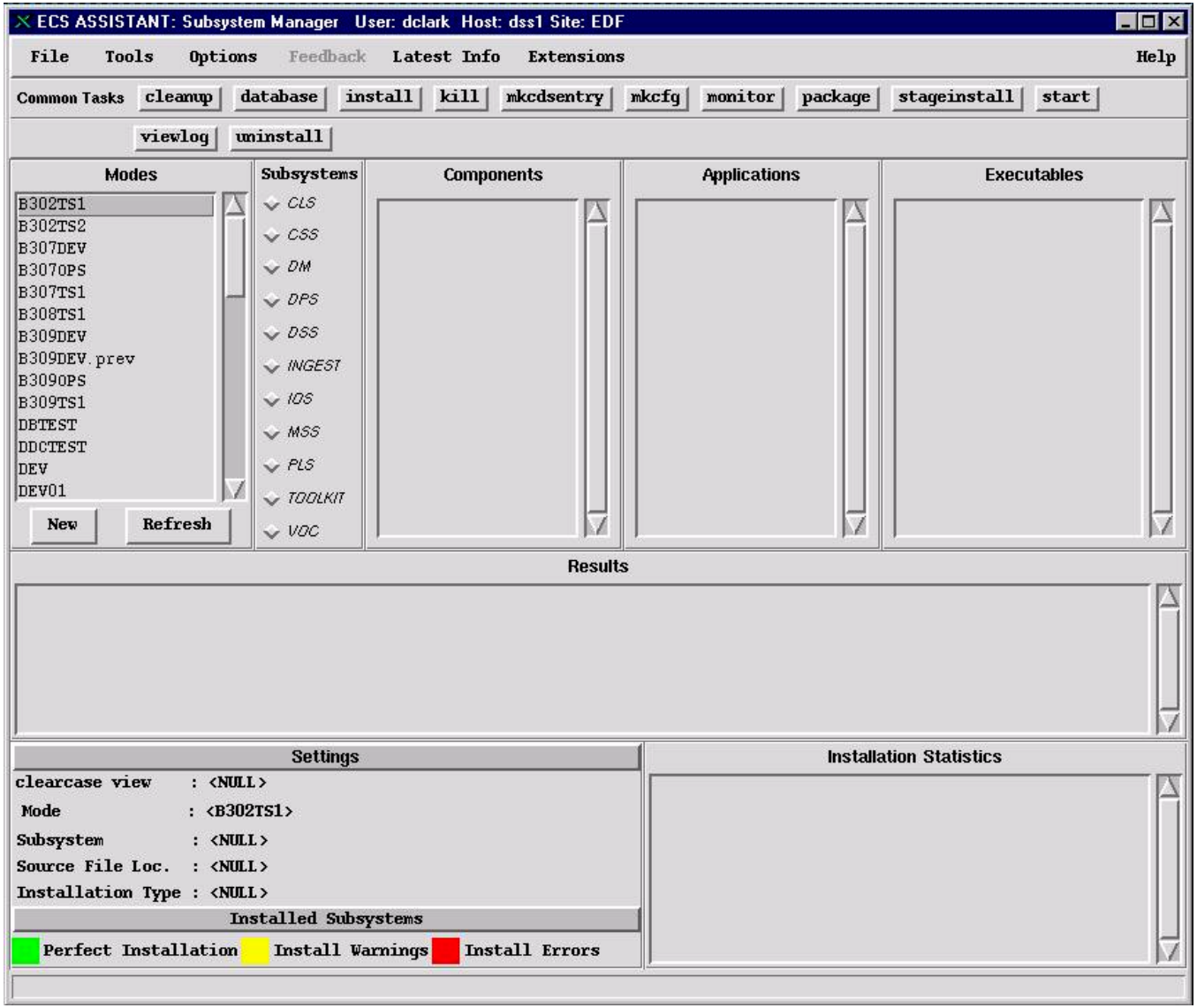

Figure 4.1.11-2. Subsystem Manager Screen

For a description of the Subsystem Manager Toolbar, see Table 4.1.11-3 below.

Table 4.1.11-3. ECSAssist Subsystem Manager Toolbar (1 of 2)

Option/Field	Action	Description
File	Click on File on the Subsystem Manager screen Toolbar.	Pull down menu showing Save As and Close selections.
Mode Manager	In the File menu, click on Save As.	To save results of ECS Mode Manager in any file or directory.
ESDT Manager	In the File menu, click on ESDT Manager.	Used to configure(copy) descriptor files and associated shared objects to the proper location.
View Task Output File	In the File menu, click View Task Output File.	Allows users to view and/or print the results of any executed tasks.
Remove Task Output File	In the File menu, click Remove Task output File.	Allows users to remove the file containing installation specific results.
Preferences	In the file menu, click Preferences.	Allows users to select preferences.
Exit	In the file menu, click Exit.	Exits Subsystem Manager.
Tools		
Browse Directories	In the Tools menu, click Browse Directories.	Allows users to locate files and display or print.
Clean Logs	In the Tools menu, click Clean logs.	Allows users to remove outdated log files.
Playback Commands	Not available in Version 2.0.	
Refresh	In the Tools menu, click Refresh.	Allows users to copy control files in the selected mode.
Retrofit	In the Tools menu. Click on Retrofit.	Re-copies script, binary, libraries and control files into the selected mode.
System Messages	In the Tools menu. Click on “System Messages”.	Displays system messages, from /var/adm.
Re-Read .sitemap file	In the Tools menu. Click on “Re-read .sitemap file”.	If there is a change to the .sitemap file, this function re-reads to obtain the latest information.
Options	Not available in Version 2.0.	
Feedback	Not available in Version 2.0.	

Table 4.1.11-3. ECSAssist Subsystem Manager Toolbar (2 of 2)

Option/Field	Action	Description
Latest Info	Click on Latest Info button	Displays new updates, if any, for ECSAssist.
Extensions	Click on extensions button	Pulls down menu showing a list of subsystem specific executables used for supporting tasks.
Help Menu	Click on Help on the Subsystem Manager Screen Toolbar.	Pulls down menu showing “Contents”, “Read Me” and “About” selections.
Common Tasks		
Cleanup	Click on cleanup button	Removes CDS entries.
Database	Click on database button	Used to install, drop, patch, update subsystem specific databases.
Install	Click on install button	Used to install ECS custom software into the selected mode.
Kill	Click on kill button	Kills
Mkcdsentry	Click on mkcdsentry button	Makes CDS entries for servers within the selected component.
Mkcfg	Click on mkcfg button	Creates CFG, ACFG and PCFG files for selected components.
Monitor	Click on monitor button	Monitors any server activity.
Package	Not available in Version 2.0.	
Stageinstall	Click on stageinstall button	Used to capture the location of the staging area.
Start	Click on start button	Used to start servers within the selected component.
Viewlog	Click on viewlog button	Used to view server log files.
Uninstall	Not available in Version 2.0.	

For a description of the Subsystem Manager Field Descriptions, see Table 4.1.11-4 below.

Table 4.1.11-4. ECS Assist Subsystem Manager Field Descriptions

Option/Field	Action	Description
Modes	Click	Select the mode.
New	Click	Create a new mode.
Refresh	Click	Refresh the Mode display using the source of the Mode information. This is useful after a New mode.
Subsystems	Click	Select the subsystem resulting in a list of available components in the "**Component**" field.
Components	Click	Select the component resulting in a list of available application in the "**Applications**" field.
Applications	Click	Select the application resulting in a list of available programs in the "**Executables**" field.
Executables	Click	Select the program displayed.
Results	Display only	Displays the captured the results of executed tasks.
Settings	Display only	Lists user's current selections.
Installation Statistics	Display only	List installation specific statistics.
Installed Subsystems	Display only	Used as legend. When an install task has completed, a color of Yellow, Red or Green highlights the selected subsystem to denote the severity of the install.

4.1.11.2.1.1 ECSAssist Subsystem Manager's "*database*" screen

The Database Configuration Screen is used to install, drop, patch, update subsystem specific databases. From the ECSAssist Subsystem Manager screen click the *database* button to initiate the database process. If there is more than one database parameter file (.dbparms) detected when the *database* button is pressed, ECSAssist will ask which one to use with the Select a File popup window shown in Figure 4.1.11-3.

Figure 4.1.11-3 File Selection Popup Window

The user selects which .dbparms file to use through the listbox and Ok button described in Table 4.1.11-4.

Table 4.1.11-4. Database Parameter File Selection Field Descriptions

Option/Field	Action	Description
Select A file	Display only	
Listbox	Click	Select file of choice; enables Ok button.
Ok	Click	Launches database script screen.

On selection of a .dbparms file, ECSAssist next brings up the Database Configuration Screen shown in Figure 4.1.11-4.

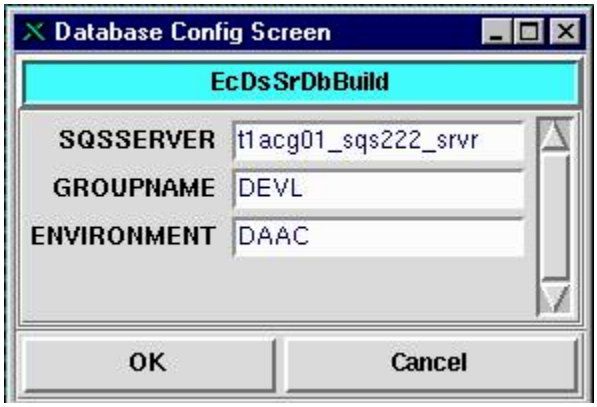

Figure 4.1.11-4. Subsystem Manager "database" Screen

Table 4.1.11-5. ECS Assist Subsystem Manager's "database" Field Descriptions

Option/Field	Action	Description
Database Config Screen	Display only	Title
EcDsSrDbBuild	Display only	Component passed from the Subsystem Manager screen
SQSSERVER	Entry	Configurable item for the displayed Component
GROUPNAME	Entry	Configurable item for the displayed Component
ENVIRONMENT	Entry	Configurable item for the displayed Component
OK	Click	Displays the database script screen
Cancel	Click	Aborts process

4.1.11.2.1.1.1 ECSAssist Subsystem Manager's "database script" screen

This screen is triggered from the ECSAssist Subsystem Manager's "database" screen, section 4.1.11.2.1.1 above. The screen is used to input the parameters to set up the database. In the ECSAssist Subsystem Manager's database script screen, the operator must enter all parameters to initiate the respective database script.

Figure 4.1.11-5 presents the database screen.

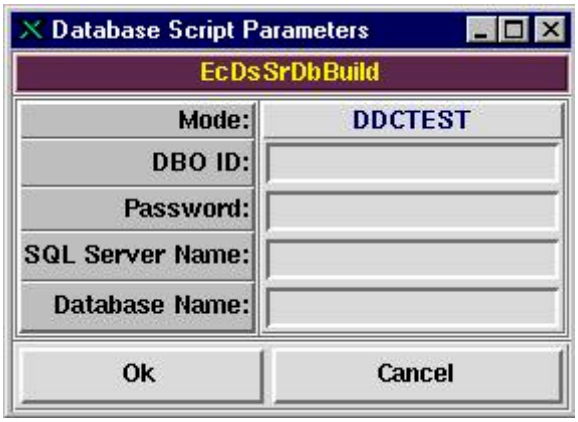

Figure 4.1.11-5. Subsystem Manager "database script" Screen

Table 4.1.11-6. ECS Assist Subsystem Manager's "database script" Field Descriptions

Option/Field	Action	Description
Database Script Parameters	Display only	Title
EcDsSrDbBuild	Display only	Title
Mode	Display only	Displays selected mode.
DBO ID	Entry	Enter dbo id
Password	Entry	Enter password
SQL Server Name	Entry	Enter sql server name
Database Name	Entry	Enter database name
OK	Click	Initiates process
Cancel	Click	Aborts process

4.1.11.2.1.2 ECSAssist Subsystem Manager's Install screen

This screen is used to install ECS custom software into the selected mode. From the ECSAssist Subsystem Manager screen click the install button to initiate the installation process.

Figure 4.1.11-6 below presents the Install screen.

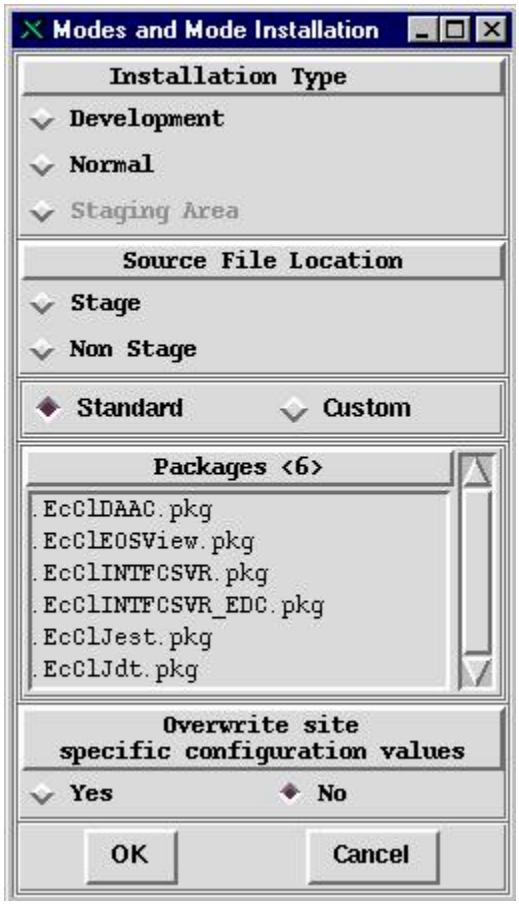

Figure 4.1.11-6. Subsystem Manager Install Screen

Table 4.1.11-7. ECS Assist Subsystem Manager Install Field Descriptions

Option/Field	Action	Description
Installation Type	Display only	Heading.
Development	Click	Creates symbolic links to ClearCase.
Normal	Click	Copies binaries and libraries to selected mode.
Staging Area	Click	Installs Mode from staging area.
Source File Location	Display only	Heading.
Stage	Click	To obtain files from the nightly build.
Non Stage	Click	Allows testing of changes before a merge to branch is performed.
Standard	Click	Default setting. Used to list available packages.
Custom	Click	Not available in Release 4.
Packages	Display only	Heading.
Overwrite site specific configuration values	Display only	Heading
Yes	Click	Use site specific .cfgparms and .dbparms file.
No	Click	Donot use site specific .cfgparms and .dbparms file. Allow operator to make selection of choice.
Ok	Click	Executes installation process.
Cancel	Click	Aborts Installation process.

4.1.11.2.1.3 ECSAssist Subsystem Manager "*mkcdsentry*" screen

This screen makes CDS entries for servers within the selected component.. From the ECSAssist Subsystem Manager screen click the *mkcdsentry* button to initiate the configuration process.

Figure 4.1.11-7. below presents the mkcdsentry screen.

Figure 4.1.11-7. Subsystem Manager "mkcdsentry" Screen

Table 4.1.11-8. ECS Assist Subsystem Manager mkcdsentry Field Descriptions

Option/Field	Action	Description
DCE Cell Admin Password	Display only	
Password	Entry	Enter Cell Admin Password. Has to be entered by DCE cell administrator.
Ok	Click	Creates keytab files to be used by DCE.
Cancel	Click	Aborts CDS entry process.

4.1.11.2.1.4 ECSAssist Subsystem Manager's mkcfg file selection screen

The mkcfg file selection window shown in Figure 4.1.11-8 allows an operator to select a .cfgparms file with configuration values that were entered by operator or should be used when starting servers.

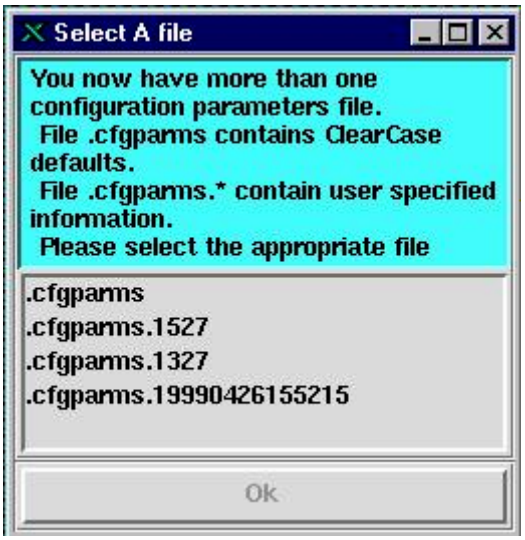

Figure 4.1.11-8. mkcfg File Selection Window

Table 4.1.11-9 describes the control fields on the configuration selection window.

Table 4.1.11-9 mkcfg File Selection Window Field Description

Option/Field	Action	Description
Select A file	Display only	
Listbox	Click	Select file of choice;enables Ok button.
Ok	Click	Launches configurable parameters screen.

4.1.11.2.1.5 ECSAssist Subsystem Manager's "*mkcfg*" screen

This screen creates CFG, ACFG and PCFG files for selected components. From the ECSAssist Subsystem Manager screen click the *mkcfg* button to initiate the configuration process.

Figure 4.1.11-9 below presents the mkcfg screen.

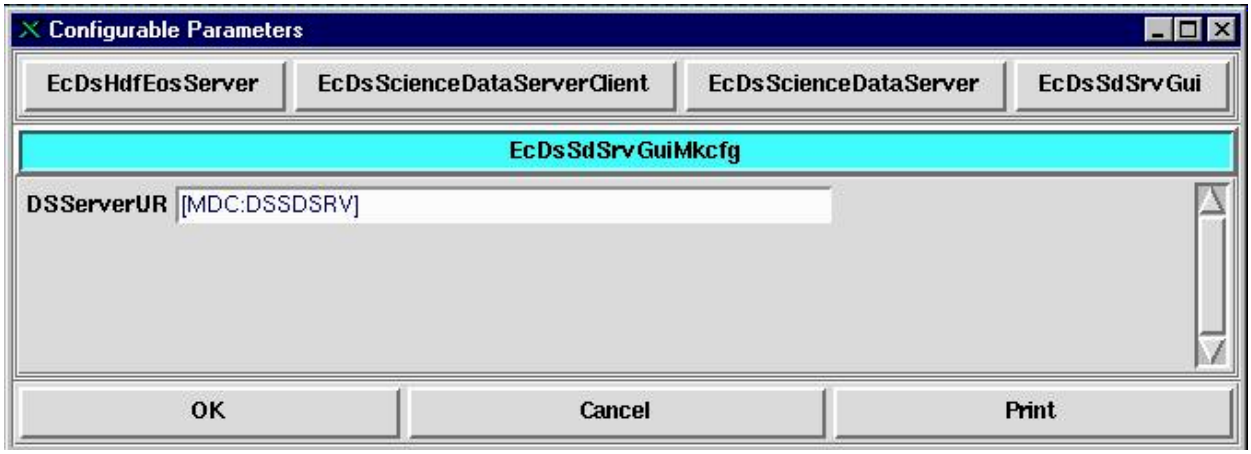

Figure 4.1.11-9. Subsystem Manager "mkcfg" Screen

Table 4.1.11-10. ECS Assist Subsystem Manager mkcfg Field Descriptions

Option/Field	Action	Description
Configurable Parameters	Display only	
EcDsHdfEosServer	Click	Allows operator to configure **EcDsHdfEosServer**.
EcDsScienceDataServerClient	Click	Allows operator to configure EcDsScienceDataServerClient.
EcDsScienceDataServer	Click	Allows operator to configure **EcDsScienceDataServer** .
EcDsSdSrvGui	Click	Allows operator to configure EcDsSdSrvGui.
EcDsSdSrvGuiMkcfg	Display only	
DSServerUR	Enter	Operator enters specific data to DSServerUR
Ok	Click	Executes configuration process.
Cancel	Click	Aborts configuration process.
Print	Click	Prints configuration parameters.

4.1.11.2.1.5 ECSAssist Subsystem Manager's "*monitor*" screen

This screen monitors any server activity. From the ECSAssist Subsystem Manager screen click the *monitor* button to initiate the monitor process.

Figure 4.1.11-10 presents the monitor screen.

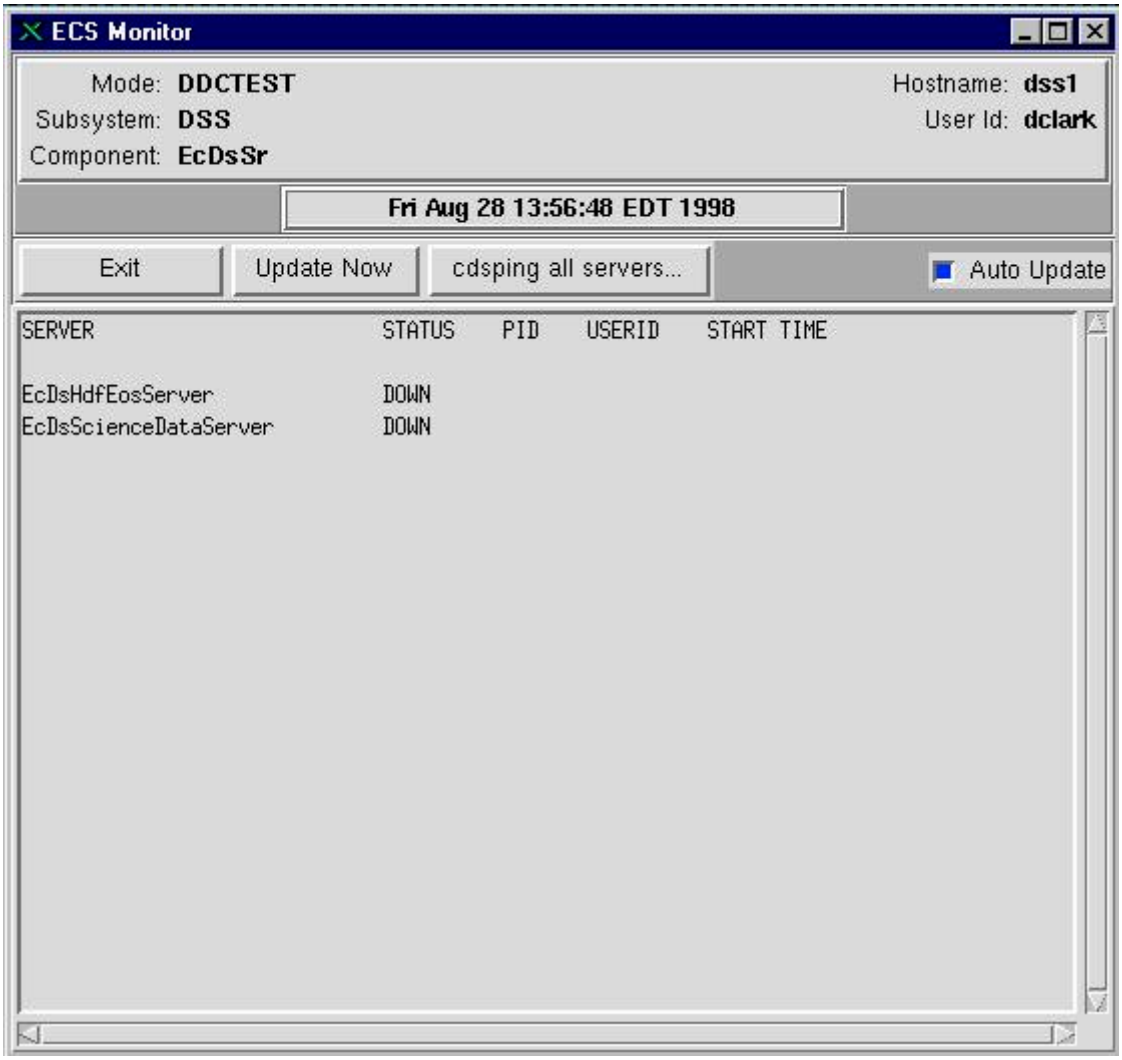

Figure 4.1.11-10. Subsystem Manager "monitor" Screen

Table 4.1.11-11. ECS Assist Subsystem Manager's monitor Field Descriptions

Option/Field	Action	Description
ECS Monitor	Display only	Title
Mode	Display only	Displays the current mode.
Subsystem	Display only	Displays the selected subsystem.
Component	Display only	Displays the selected component.
Hostname	Display only	Displays the hostname.
User Id	Display only	Displays the user's id.
Date	Display only	Displays the date.
Exit	Click	Exits monitoring process.
Update Now	Click	Refreshes the monitor screen.
Cdsping all servers...	Click	Display a list of server processes and their statuses.
Auto Update	Toggle	When set to on, the monitor will refresh itself.

4.1.11.2.1.7 ECSAssist Subsystem Manager's "stage install" screen

The stage install screen is used to input the staging location where the delivered software is stored. From the ECSAssist Subsystem Manager screen click the *stageinstall* button to initiate the viewlog process

Figure 4.1.11-11 below presents the stage install screen.

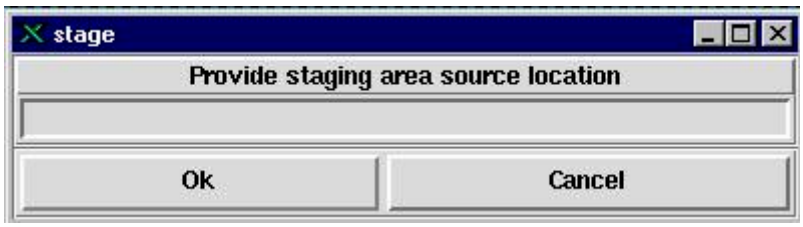

Figure 4.1.11-11. Subsystem Manager "stageinstall" Screen

Table 4.1.11-12. ECS Assist Subsystem Manager stageinstall Field Descriptions

Option/Field	Action	Description
Stage	Display only	Title
Provide staging area source location	Display only	Label
Input field	Input	Type in the staging area filename
Ok	Click	Accepts the operator's entry
Cancel	Click	Aborts the process

4.1.11.2.1.8 ECSAssist Subsystem Manager's "*viewlog*" screen

This screen is used to view server log files. From the ECSAssist Subsystem Manager screen click the *viewlog* button to initiate the viewlog process.

Figure 4.1.11-12 below presents the viewlog screen.

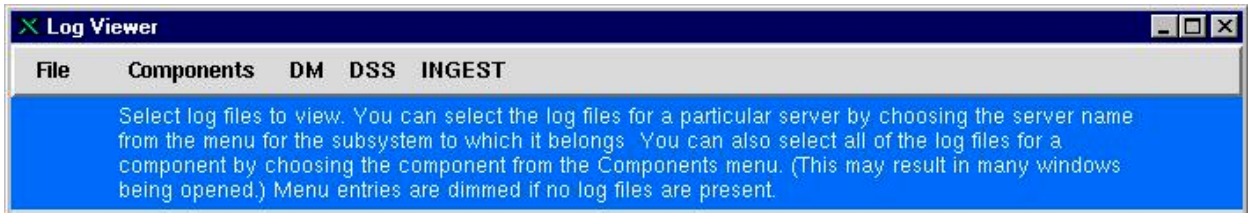

Figure 4.1.11-12. Subsystem Manager "viewlog" Screen

Table 4.1.11-13. ECS Assist Subsystem Manager's viewlog Field Descriptions

Option/Field	Action	Description
Log Viewer	Display only	Title
File	Display only	Displays the current mode.
Quit	Display only	Displays the selected subsystem.
Components	Display only	Displays the selected component.
DM	Display only	Subsystem DM. Select this entry to view logs for the subsystem DM.
DSS	Display only	Subsystem DSS. Select this entry to view logs for the subsystem DSS..
INGEST	Display only	Subsystem INGEST. Select this entry to view logs for the subsystem INGEST.

4.1.11.2.2 ECSAssist ESDT Manager

Not available in Version 2.0.

4.1.11.2.3 ECSAssist Mode Manager

Not available in Version 2.0.

4.1.11.3 Required Operating Environment

For information on the operating environment, tunable parameters and environment variables of ECSAssist refer to the 920-TDx-013 "Custom Code Configuration Parameters" documentation series . The "x" refers to the installed location, e.g. 920-TDG-013 is for GSFC DAAC.

4.1.11.3.1 Interfaces and Data Types

None.

4.1.11.4 Databases

No database is associated with or used by the ECSAssist. ECSAssist may create entries in the CDS catalog, create configuration files for software components, remove outdated log files, or update other files related to the functions performed.

4.1.11.5 Special Constraints

None.

4.1.11.6 Outputs

Output from the ECSAssist tool consists of the data displayed on the GUIs described in Section 4.1.11.2.n and error and event messages described in Section 4.1.11.7

4.1.11.7 Event and Error Messages

Event and Error Messages for ECSAssist are listed in Appendix A. All outputs associated with ECS Assistant are captured in a file call /tmp/<userid>.ecs_session.log.

4.1.11.8 Reports

None.

4.2 System Monitoring

This section describes the system monitoring tools used by DAAC operators:

1. HP OpenView
2. Tivoli
3. Remedy
4. PEER/Patrol SNMP

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4.2.1 HP OpenView

This section describes how HP OpenView is used by DAAC Operators to perform system monitoring. HP OpenView provides operators to specify, for each managed object, the following information:

- Performance attributes to be collected. Management Information Bases (MIBs) are used to define attributes that can be collected from various managed objects. Each performance attribute that can be measured has an associated object identifier (***oid***) specified in a MIB. HP OpenView collects data for each ***oid*** that has been specified for a particular managed object.

- Frequency of performance attribute data collection. This value can be set differently for each attribute associated with a managed object.

- Threshold(s) which indicate degraded performance condition(s) (one or more can be set for each ***oid*** on each managed object). For each threshold set, a corresponding rearm value can also be set. Once the threshold is exceeded, the performance attribute must then fall below the rearm value before the performance degradation is cleared. This prevents the generation of multiple degradation alerts in the case where the performance attribute value is fluctuating around the threshold value.

- Performance attributes to be logged. HP OpenView logs only that data specified by the operator. For each ***oid*** on each managed object, performance management can take one of three forms:

    1. attribute not monitored
    2. attribute monitored but not logged
    3. attribute monitored and logged

HP OpenView can monitor any performance management attributes that are included in MIBs and supported by ECS management agents.

HP OpenView is used to perform Network Management functions described in the vendor manual *HP OpenView Using Network Node Manager*. The common ECS specific OpenView functions used by the DAAC operators are listed in Table 4.2.1-1.

Table 4.2.1-1. Common ECS Operator Functions Performed with HP OpenView

Operating Function	Command/Script	Description	When and Why to Use
Start application program	**Start Executable** on GUI	Starts the selected (wheat or red colored icon) ECS application program.	To manually start ECS applications programs
End application programs	**Shutdown Executable** on GUI	Right mouse button kills the selected (green colored icon)	To manually terminate a running ECS applications program.

4.2.1.1 Quick Start Using HP OpenView

HP OpenView is a COTS product used to manage the ECS system. The OpenView GUI provides a display of the status for managed objects, selection of system monitoring functions, and operator input for system management. For more information please see Chapter 2 "Getting Started" in the "*HP OpenView Using Network Node Manager*" manual.

The documentation of HP OpenView used as a basis and referenced in this section is for Version 4.11

4.2.1.1.1 Invoking HP OpenView From the Command Line Interface

To execute HP OpenView the operator must be logged onto the OpenView host.

To execute OpenView from the command line prompt use:

setenv DISPLAY {machine name}**:0**

setenv SHLIB_PATH /opt/OV/lib:${SHLIB_PATH}

/opt/OV/bin/ovw <-map mapname>&

Where **mapname** is the name of the OpenView map for ECS Application Management**.**

If it is necessary to execute MSS Agents from the command line prompt use:

/**usr/ecs/SHARED/CUSTOM/utilities/ECMSAgentStart**

Refer to the 920-TDx-013 "Custom Code Configuration Parameters" documentation series , for a listing of the **ovw**

4.2.1.2 HPOV Main Screen

The main screen shows the DAAC site with Network and Services icons. The Network icon provides the status of SNMP supported devices. The Service icon monitors the status of the ECS application. Under the menu bar are Navigation icons.

From left to right the Navigation icons are:

- **Close** - Close this submap. If this is the last submap open, OpenView displays a confirmation dialog before exiting.
- **Home** - Go to the home submap for the this users.
- **Root** - Go to the root submap for this map.
- **Parent** - Go to the parent submap for this submap.
- **Quick Navigation** - Go to the submap which can be customized by the operator.
- **Zoom** - Zoom in on a portion of the map.
- **Help** - Provides on-line help.

The pull-down menu bar is also part of OpenView. For more information about these functions please see Chapter 2 "Getting Started" in the "*HP OpenView Using Network Node Manager*" manual.

Figure 4.2.1-2 shows the HP OpenView Main Screen with geographic distribution of Network Nodes. It is displayed when HP OpenView is first started.

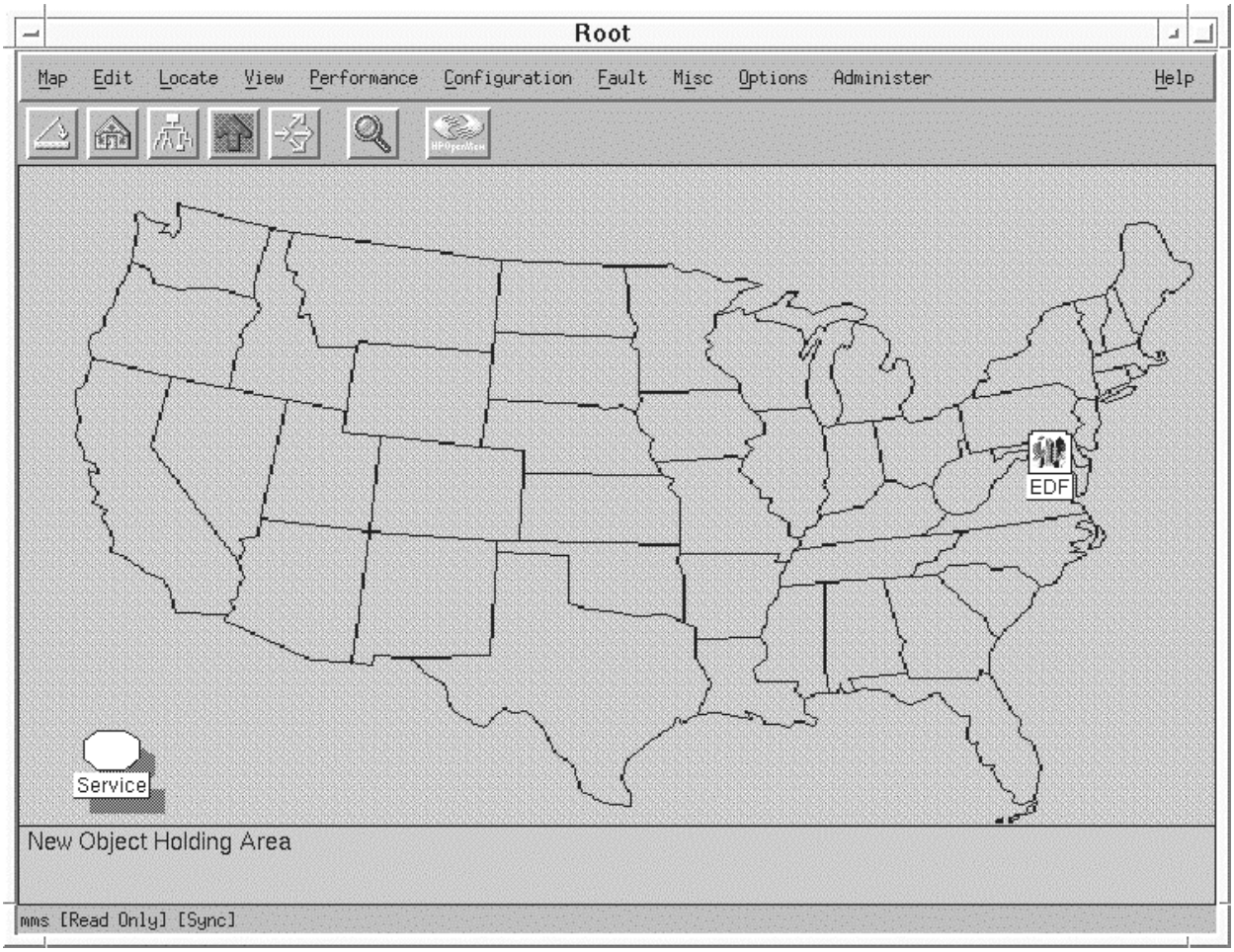

Figure 4.2.1-2. HP OpenView Main Screen -- Network Nodes

Figure 4.2.1-3 shows the HP OpenView Main Screen with OV map examples of managed object icons. It is deplayed after double-clicking the Service icon on the main OV map shown in Figure 4.2.1-2.

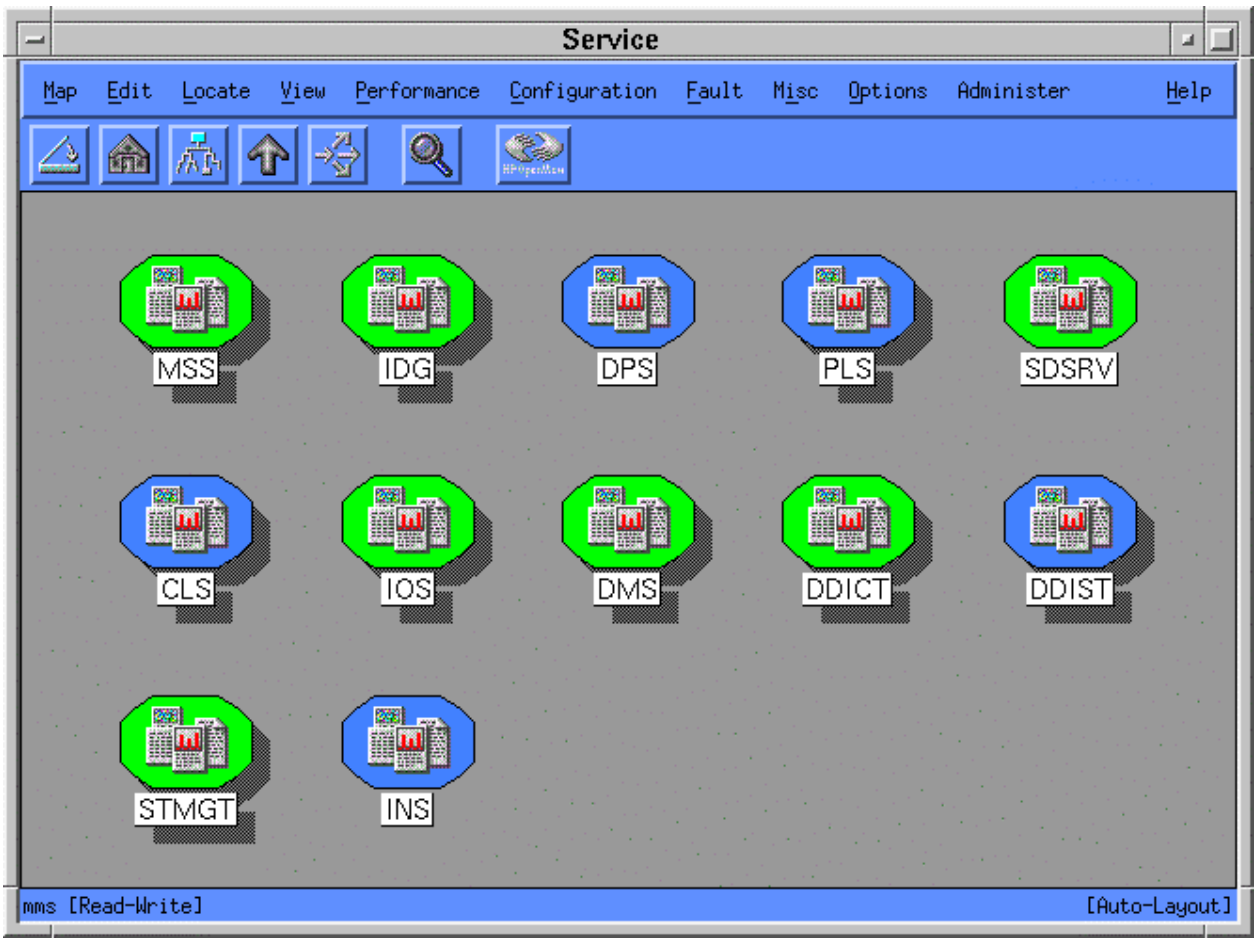

Figure 4.2.1-3. HP OpenView Main Screen -- OV map

The icons displayed on the OpenView map identify the ECS servers. These icons are described in Table 4.2.1-2.

Table 4.2.1-2. HPOV Service example icon Descriptions

Symbol	Description
MSS	Management Subsystem Server
IDG	Infrastructure Development Group Server
DPS	Data Processing Subsystem Server
PLS	Planning Subsystem Server
SDSRV	Science Data Server
CLS	Client Subsystem Server
IOS	Advertising Subsystem Server
DMS	Data Management Subsystem Server
DDICT	Data Dictionary Subsystem Server
DDIST	Data Distribution Subsystem Server
STMGT	Storage Management Subsystem Server
INS	Ingest Subsystem Server

4.2.1.2.1 Event Categories

The Event Categories Pop-up (Figure 4.2.1-4 and Table 4.2.1-3) provides selection of the events to be monitored. The list of selectable events is configurable and is dependent on the collection of managed objects and the data collection agents. It is displayed when OpenView is first started.

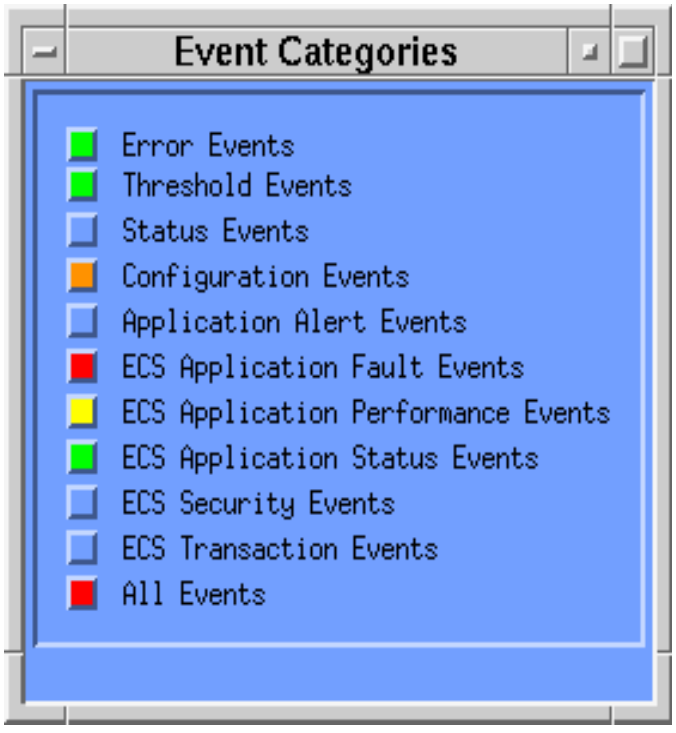

Figure 4.2.1-4. HP OpenView Event Categories Pop-up

Table 4.2.1-3. Event Categories Selection Fields Description

Field Name	Description
Error Events	Events that indicate that inconsistent or unexpected behavior occurred
Threshold Events	Events that indicate a threshold was exceeded
Status Events	Events that indicate the status of a component or interface has changed
Configuration Events	Events that indicate that a node's configuration has changed
Application Alert Events	Events that describe the status of the system performance management software
ECS Application Fault Event	Events that indicate a fault has occurred.
ECS Application Performance Event	Events that indicate that a performance threshold was reached.
ECS Application Status Event	Events that indicate that a status has changed.
ECS Security Event	Events that indicate that a security issue has occurred.
ECS Transaction Event	Events that indicate that a transaction has occurred.
All Events	All events listed above

4.2.1.2.2 OpenView Grapher

Operators may display selected managed object parameters in graph form using the GRAPHER function. See Chapter 9 "Using the Grapher" in the "*HP OpenView Using Network Node Manager*" manual for more detail on this process. The information displayed by Grapher may be printed by selecting File->Print from the menu bar. Figure 4.2.1-4 shows the HP OpenView graph screen. Table 4.2.1-4 shows the description of the fields.

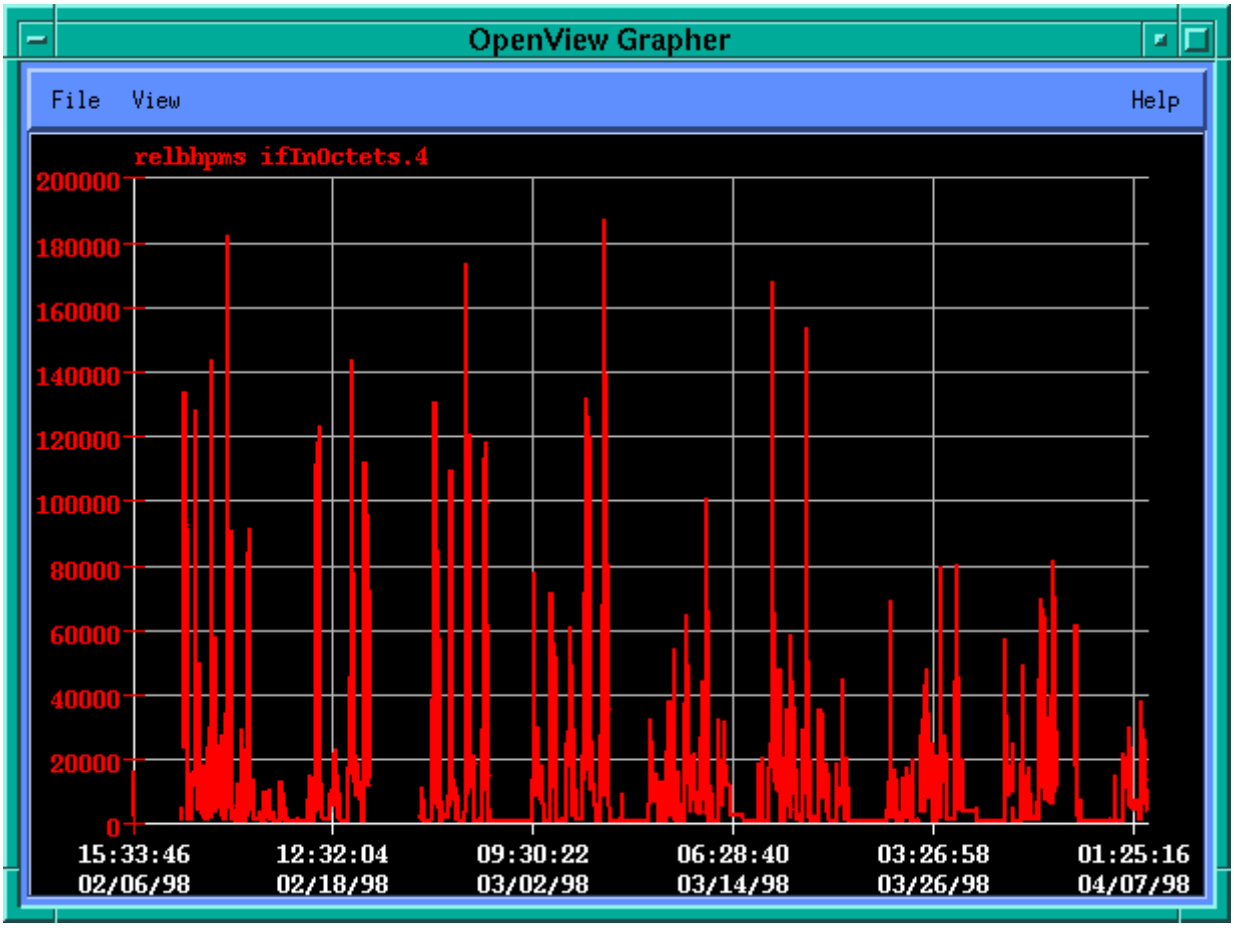

Figure 4.2.1-5. HP OpenView Graph Screen

Table 4.2.1-4. HP OpenView Grapher Field Description

Field Name	Description
Parameter Identification	The part of the screen immediately above the graph displays the parameters graphed. If multiple parameters are graphed, a color code is provided for recognition.
Vertical Axis	The vertical axis units are computed to fit the display area.
Horizontal Axis	The horizontal axis units are computed to fit the display area.

4.2.1.3 Required Operating Environment

HP OpenView requires HP-UX 10.X.

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled

document for each product. To find the documentation for HP OpenView, refer to the ECS Baseline Information System web page, URL:

http://cmdm.east.hitc.com/.

4.2.1.3.1 Interfaces and Data Types

HP OpenView exchanges data of various types through interfaces within and external to ECS. Table 4.2.1-5 lists HP OpenView system interfaces.

Table 4.2.1-5. HPOV External Interface Protocols

Interface (facility)	Type of Primary Interface Protocols	Type of Backup Interface Protocols	Comments
EcMsAgDeputy	SNMP	None	Receive events from subagent and forward them to OV via SNMP
EcMsCmEcsd	SNMP, HPOV API	None	Receive events from EcMsAgDeputy to update OV database.
EcMsCmMgr	SNMP, HPOV API	None	Use events sent by EcMsAgDeputy and Database info to update OV GUI map.

4.2.1.4 Databases

HP OpenView uses a proprietary database to store objects, topology, map, and event information.

4.2.1.5 Special Constraints

None.

4.2.1.6 Outputs

Output from the HP OpenView consists of the data displayed on the GUIs described in Section 4.2.1.2, database updates or additions to the database referenced in Section 4.2.1.4, error and event messages described in Section 4.2.1.7, and reports described in Section 4.2.1.8 which may produce files output in response to user actions or are printed.

4.2.1.7 Event and Error Messages

HP OpenView issues both status and error messages to the Event Browser Window.

4.2.1.8 Reports

Data stored in the OpenView database will be sent to ECS Report Generation Service to generate ECS reports. This data may also be viewed and printed with the OpenView Graphing Utility. See Chapter 9 "Using the Grapher" in the "*HP OpenView Using Network Node Manager*" manual for more detail on this process.

4.2.2 Tivoli

Tivoli is a COTS product serving as a network systems administration and performance/fault monitoring tool. It provides administration through the "profiles" of users, groups, and hosts. Tivoli also provides monitoring of system fault and performance management. Tivoli is a package of several related components: Tivoli Management Platform, Tivoli Sentry, Tivoli Courier, and Tivoli Enterprise Console. Tivoli Management Platform provides the administrative and management services to support the package. Tivoli Sentry allows for customization of the events and thresholds to monitor. Once the events to monitor have been selected, the operator can determine which actions should be taken for each of the various thresholds. Using the Tivoli Enterprise Console (TEC), the operator can monitor events as they occur. Tivoli Courier is covered in Section 4.3.5 and more information on Tivoli Enterprise Console and Tivoli Admin can be found in Section 4.4.6. Enterprise SQL Server Manager (ESSM) is used to provide for SQL Server administration and management. Tivoli is used to perform the operating functions listed in Table 4.2.2-1.

Table 4.2.2-1. Common ECS Operating Functions Performed with Tivoli (1 of 2)

Operating Function	GUI	Description	When and Why to Use
system administration	Tivoli Admin	• allows for the creation of an M&O "users" account from a single GUI interface including the creation of: – UNIX account – corresponding ECS DCE account – home directory – selection of corresponding roles – mail aliases • allows for the administration of a distributed heterogeneous Unix system. Manages the following resources: – Unix Host – NIS Maps – Host Namespace – Unix Users – Unix Groups	• to create/modify/ delete "User" Accounts • to manage and distribute UNIX Users, UNIX Groups, and Host Namespace information • to distribute all of the information to all of the hosts with one single command

Table 4.2.2-1. Common ECS Operating Functions Performed with Tivoli (2 of 2)

Operating Function	GUI	Description	When and Why to Use
System Monitoring	Tivoli Enterprise Console (TEC)	• provides overall systems monitoring functionality • provides a single location to monitor all events that are occurring through the system • provides a gauge to determine the severity of each event • provides a log of each event	to monitor the overall activities associated with ECS
Performance and Fault Monitoring	Tivoli Sentry	• provides a set of pre-canned monitors, as well as capability to develop unique monitors • allows selection of severity level (can set up unique monitors for 5 different levels), thresholds, and notice groups	to add, delete, or modify the performance and fault monitors

4.2.2.1 Quick Start Using Tivoli

This section presents an orientation of Tivoli. The Tivoli Desktop presents an integrated desktop environment for the operators. From the desktop, the operator is able to access Tivoli functions directly (e.g., Enterprise Console, Sentry, ADMIN) and launch the other COTS (e.g., security management applications) from icons on the desktop. The Tivoli Desktop also provides a mechanism to limit each operator's view into the management toolset. The ***Tivoli Administrator*** sets up each operator's desktop and assigns operator privileges that limit what can be accessed based on the operator's Tivoli ***role***. Tivoli terminology addresses the different functions the tools perform.

A ***Tivoli Administrator*** (*Tivoli Management Platform User's Guide, Chapter 2*) is a system administrator that has been established as a Tivoli Management Environment (***TME***) administrator. The initial Tivoli administrator is added during installation of the TME. Since ***root*** authority (***role***) is required to install the TME, the initial Tivoli administrator is called the root administrator by default. After the TME is installed, other non-root administrators can be defined and given roles in ***policy regions***. These administrators can perform assigned system management tasks without being ***root*** or requiring access to the super user password (***super*** role).

The Tivoli Management Environment (TME) uses ***policies*** (*Tivoli Management Platform User's Guide, Chapter 5)* to allow the system administrator to customize TME for system needs. A ***policy*** is a written rule that is put into effect for a system that the TME enforces as management operations are performed by administrators. If a Tivoli administrator has the ***senior*** role over a source or TMR, they can implement organization-specific administration rules to ensure that the management operations are only performed within the bounds of the organization's rules and

procedures. A ***default policy*** is a set of default resource property values that are assigned to the resource when the resource is entered into Tivoli. A ***validation policy*** ensures that all resources in a policy region comply with the region's established policy.

A ***policy region*** (*Tivoli Management Platform User's Guide, Chapter 5)* is a special collection of resources that share one or more common policies. Policy regions provide a way to model the management and organization model of the distributed computing environment. A ***managed resource*** is a specific instance of a resource type that has a default policy defined in the policy region.

A Tivoli Management Region (***TMR***) (*Tivoli Management Platform User's Guide, Chapter 4)* is a TME server and the set of clients that it serves.

A ***profile*** (*Tivoli Management Platform User's Guide, Chapter 6)* is a set of common configuration information, for a group of machines used for similar purposes, in a centralized area.

A ***notice*** (*Tivoli Management Platform User's Guide, Chapter 7)* is a message concerning some operation or change in the distributed system. Notices are generated by a Tivoli system management operation.

The documentation of Tivoli used as a basis and referenced in this section is for version 3.0.1, contained in ECS Release 4.

4.2.2.1.1 Invoking Tivoli From the Command Line Interface

To execute Tivoli from the command line prompt use:

source /etc/setup_env.csh (in c shell)

. /etc/Tivoli/setup_env.sh (in Bourne or bash shell)

tivoli -font fixed

4.2.2.2 Tivoli Main Screen

The Main screen is the TME Desktop for Administrator "User Name" Screen, shown in Figure 4.2.2-2. From this screen, an operator has access to the Tivoli according to the role and privileges assigned. The screen is divided into two windows: an upper window containing icons of the available Tivoli functions, and a lower window that displays status messages pertaining to ongoing functions selected in the upper window. From this desktop, the Administrator has the following selections:

- Administrators
- Notices
- Enterprise Console (in "test")
- Event Server

- Admin Policy Region
- GSFC Policy Region
- "Server" Region Policy Region (Note: this is created during the Tivoli install. It only appears on the root users desktop and contains icons for all of the client/servers that were created during install.)
- Scheduler

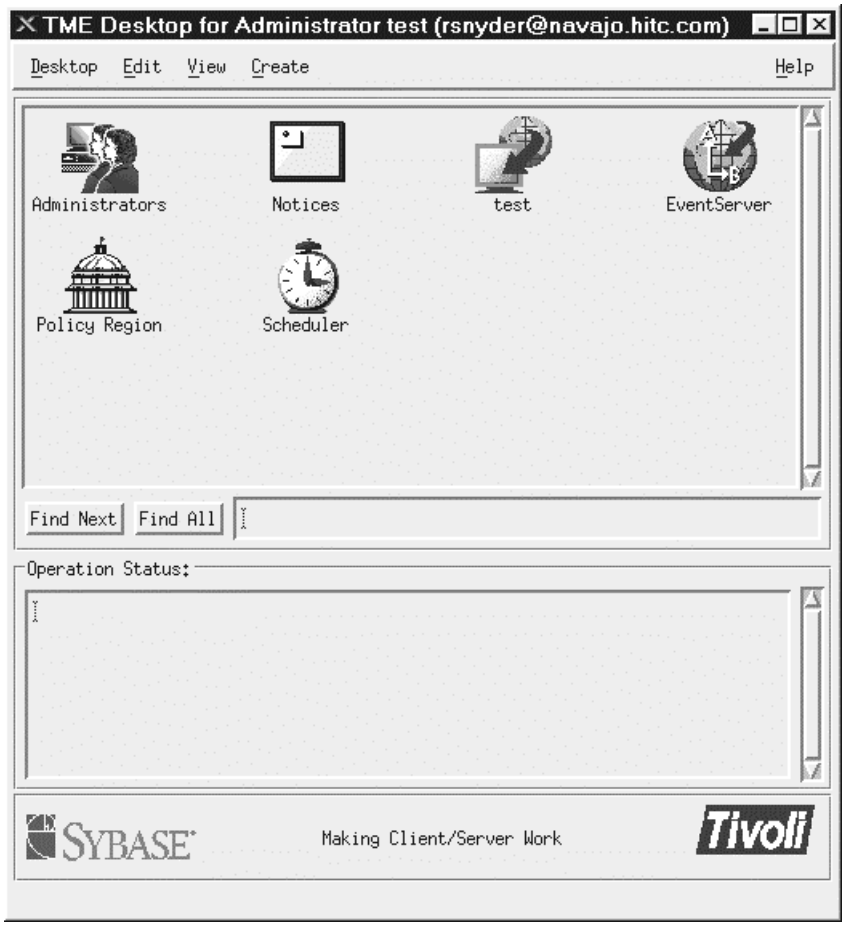

Figure 4.2.2-2. TME Desktop for Administrator GUI

4.2.2.2.1 Administrators GUI

Clicking on the Administrators icon in the upper window of the TME Desktop for Administrator GUI (shown in Figure 4.2.2-2) opens the Administrators window. From this window, the operator can add and delete users and edit user roles (resource and TMR region), logins, and notice groups. For more information on the Administrators GUI, see Chapter 3: **Tivoli Administrators** of the *Tivoli Management Platform User's Guide*.

4.2.2.2.2 Notices GUI

Clicking on the Notices icon in the upper window of the TME Desktop for Administrator GUI(shown in Figure 4.2.2-2) invokes the Notices application, which is a notification facility that tracks system administration activity. The notifications inform Tivoli Administrators of systems management operations and report which administrator performed particular actions. The notification facility can serve as an Audit Trail to allow for later determination of "who did what" in the system. For more information on the Notification Facility, see Chapter 7: **Notification** of the *Tivoli Management Platform User's Guide*.

4.2.2.2.3 Tivoli Enterprise Console

Clicking on the Enterprise Console icon in the upper window of the TME Desktop for Administrator GUI (shown as "test" in Figure 4.2.2-2) invokes the Enterprise Console. This application provides centralized processing and management of distributed events, allows shared or partitioned administrator responsibilities based on enterprise-defined areas of responsibility, and a flexible interface to view and respond to events based on events severity, source, location, or other characteristics. For more information, see the *Tivoli Enterprise Console User's Guide*.

4.2.2.2.4 Tivoli Event Server

Clicking on the EventServer icon in the upper window of the TME Desktop for Administrator GUI(shown in Figure 4.2.2-2) brings up the Event Server which provides a centralized location for the management of all configured events. The Event Server performs the following functions:

- Logging
- Applying rules
- Correlating Events
- Responding automatically to events
- Updating event consoles
- Processing input from event consoles
- Delaying responses to events
- Escalating events

For more information, see pages 2-7 of the Tivoli Enterprise Console User's Guide.

4.2.2.2.5 Tivoli Admin Policy Region

Clicking on the Admin (**Admin** is the unique name provided by the developer) icon in the upper window of the TME Desktop for Administrator GUI(Figure 4.2.2-2), invokes the Tivoli Admin Policy Region which is a collection of User, Group, and Host management profiles. A Policy Region is a special collection of resources that share one or more common policies. Policy Regions

provide a way to model the management and organization model of the distributed computing environment. For more information on Policy Regions, see Chapter 5: Policy and Policy Regions of the *Tivoli Management Platform User's Guide*.

4.2.2.2.5.1 Tivoli Admin Profile Manager

Subordinate to the Policy is a Profile Manager. The Profile Manager Icon. Profile Managers provide a way for profile managers to organize groups of profiles. They control the distribution of profiles to subscribers across a specified portion of a network. For more information on Profile Managers, see Chapter 6: Configuration Management of the *Tivoli Management Platform User's Guide.*

4.2.2.2.5.1.1 Tivoli Admin Profiles

Beneath the Profile Managers are Profiles. Profiles are collections of application-specific information. Each Profile is specific to a particular profile type and each profile contains configuration information. In the case of the Tivoli Admin Profiles there are User, Group, and Host Profiles. User Profiles contain user account configuration information. Group Profiles contain group account information. For more information on Profiles, see Chapter 6: Configuration Management of the *Tivoli Management Platform User's Guide*. For more information on User and Group Profiles, please see the *Tivoli User and Group Management Guide*. Host Profiles provide configuration information for hosts. For more information on Host Profiles, please see the *Tivoli Host Management Guide.*

4.2.2.2.5.1.2 Tivoli User Profile Properties

At this level there are three Tivoli Profiles: User, Group, and Host. If the User Group is opened, the User Profile Properties window appears (see Figure 4.2.2-3 below). To add a new user, select the "Add " button in the bottom left corner of this window. This is the GUI that is used to create an ECS Account (both UNIX and DCE) for a new member of the M&O staff. The customized Add Record To Profile window appears. Added to this window have been the Home Telephone field (this is where the operator's home telephone number appears), Available Roles (this is where the operator's available roles are selected), DCE Group field (where the operator's DCE Group is indicated), and the DCE Organization (where the operator's DCE organization is indicated.) For more information on this window (standard features), please see Chapter 3: Using User Profiles of the *Tivoli User and Group Management Guide.*

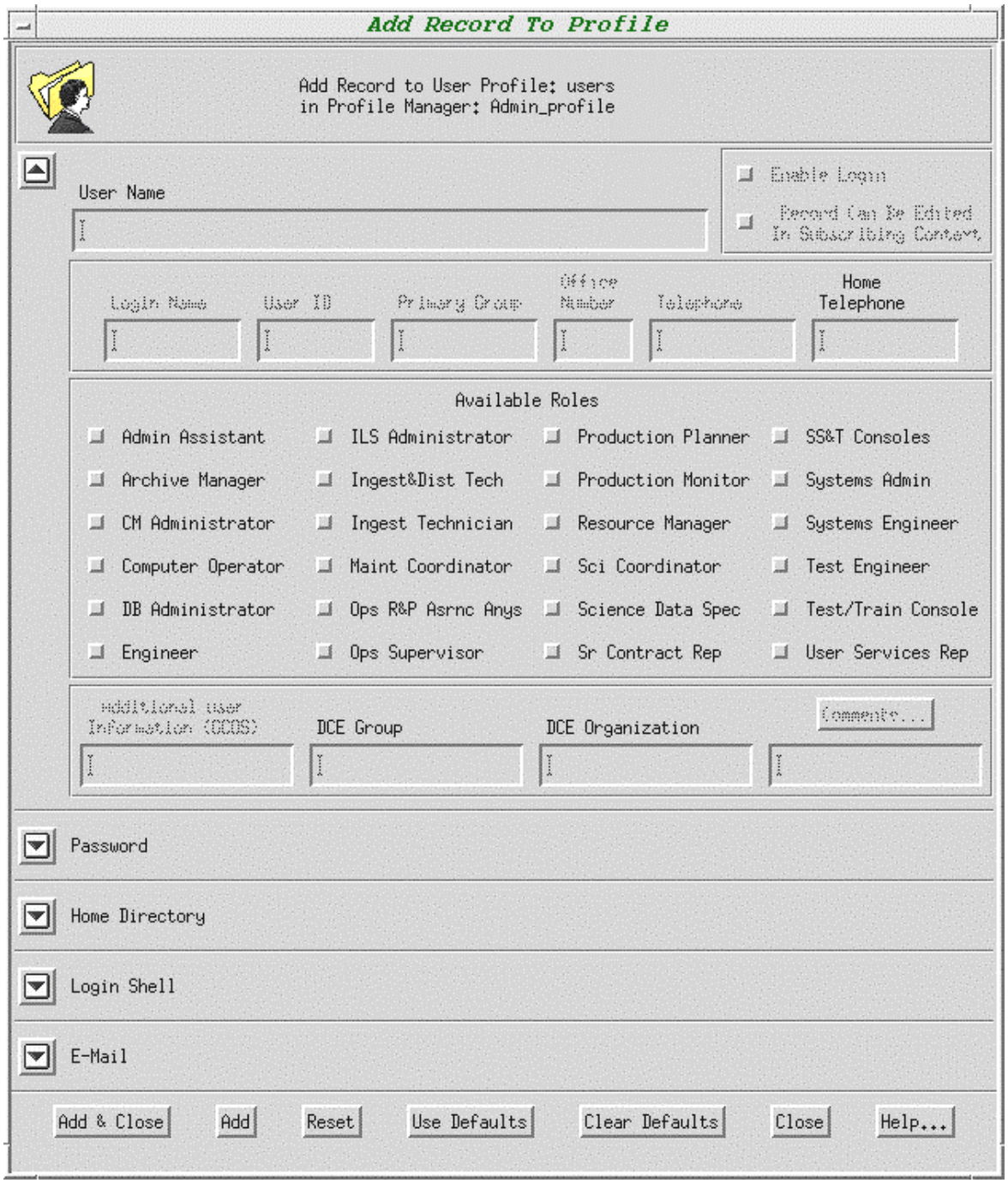

Figure 4.2.2-3. Add Record to Profile Screen

4.2.2.2.6 Tivoli GSFC Policy Region

A Policy Region is a special collection of resources that share one or more common policies. Policy Regions provide a way to model the management and organization model of the distributed computing environment. For more information on Policy Regions, see Chapter 5: Policy and Policy Regions of the *Tivoli Management Platform User's Guide*.

4.2.2.2.6.1 Tivoli Profile Manager

For a description of the Tivoli Profile Manager, see Section 4.2.2.2.5.1. The GSFC Policy Region Profiles are Indicator Collection, Fault Profile Manager, Performance Profile Manager, Security Profile Manager. These Profile Managers are Sentry Profile Managers. For more information on Sentry, please see the *Tivoli/Sentry User's Guide* and the *Tivoli/Sentry Monitoring Collection Reference Manuals*. For more information on Profile Managers, please see Chapter 6: Configuration Management of the *Tivoli Management Platform User's Guide*.

4.2.2.2.6.2 Tivoli Profiles

Beneath the Profile Managers are Profiles. Profiles are collections of application-specific information. Each Profile is specific to a particular profile type and each profile contains configuration information. For more information on Profiles please see Chapter 6: Configuration Management of the *Tivoli Management Platform User's Guide.*

4.2.2.2.7 Tivoli Root-Region

This Policy Region is created during initial installation and contains each of the Managed Nodes (a Tivoli client or any resource that is being managed by Tivoli). For more information on Policy Regions, see Chapter 5: Policy and Policy Regions of the *Tivoli Management Platform User's Guide*.

4.2.2.2.8 Scheduler

The Tivoli Management Environment Scheduler allows the operator to schedule jobs to occur at specified times within a specified time frame. The operator can also schedule jobs to repeat a specified number of times during a specific time interval or schedule jobs to run indefinitely. For more information regarding the Scheduler, please see Chapter 9: TME Scheduler of the *Tivoli Management Platform User's Guide.*

4.2.2.3 Required Operating Environment

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled document for each product. To find the documentation for Tivoli, refer to the ECS Baseline Information System web page, URL http://cmdm.east.hitc.com/.

4.2.2.3.1 Interfaces and Data Types

Tivoli exchanges data of various types through interfaces within and external to ECS. Table 4.2.2-2 lists Tivoli system interfaces for Version 2.0.

Table 4.2.2-2. Interface Protocols

Interface	Type of Primary Interface Protocols	Comments
Object Request Broker	Oserv	Tivoli uses its Oserv to interface with other Tivoli oserv(s)
Syslog	Log File Adapter	• Tivoli uses the Log File Adapter to read any ASCII log • The adapter has been customized in ECS Version 2.0 to monitor some of the COTS logs
Syslog	HP OpenView Adapter	Tivoli uses the HP OpenView Adapter to read the HP OpenView Trapd log
Sentry	Sentry Engine	• Sentry Engine is used to intermediate the communications between the Monitors and the Oserv

4.2.2.4 Databases

Tivoli uses two databases, one is a Sybase database and one is a Tivoli proprietary database. Operators are unable to access any of the information that either of them contain.

4.2.2.5 Special Constraints

Anyone who has access to Tivoli has different roles and privileges as set by DAAC policy.

4.2.2.6 Outputs

The only output from Tivoli is information that is presented on the console.

4.2.2.7 Event and Error Messages

Tivoli issues status messages that are output to the Operation Status panel at the bottom of the Tivoli TME Desktop (For a brief description of Status Messages, see Status Messages on pages 1-16 of the *Tivoli Management Platform User's Guide (Release 2.5*). Tivoli also posts messages to the Notifications Facility (for more information on the Notification Facility, see Chapter 7: Notification of the *Tivoli Management Platform User's Guide*. Based on configuration, events and error messages are also posted to the appropriate Event Source of the Enterprise Console (for more information on the Enterprise Console, see the *Tivoli Enterprise Console User's Guide*).

Both event and error messages unique to ECS are listed in Appendix D.

4.2.2.8 Reports

None.

4.2.3 Remedy's Action Request System

The Remedy Action Request System provides a distributed Trouble Ticketing Service that furnishes DAACs a common environment and the means of classifying, tracking, and reporting problem occurrences and resolutions to both ECS users and operations personnel. The Trouble Ticketing Service:

- provides a GUI for operations personnel to access all Trouble Ticket services
- provide a common Trouble Ticket entry format
- stores Trouble Tickets
- retrieves Trouble Tickets via ad-hoc queries
- allows operations personnel to forward problems from one DAAC to another
- generates reports and statistics
- interfaces with user's and operator's e-mail to provide automatic notification
- offers an application programming interface through which applications can submit Trouble Tickets
- provides summary information to the SMC from each DAAC to allow trend reports regarding Trouble Tickets
- enables operations personnel to forward a copy of a "closed" trouble ticket to the SMC for insertion into the ECS Closed Trouble Ticket Database
- defines a consistent "life-cycle" for Trouble Tickets
- allows each DAAC a degree of customization through definition of further escalation and action rules

Escalation rules are time-activated events which execute on Trouble Tickets which meet a set of specified criteria. Actions that can be taken include notification (either a user or support staff member), writing to a log file, setting a field value on the Trouble Ticket, or even running a custom written process. Qualifications can be expressed on any Trouble Ticket data tracks. Active links are similar to escalation rules with the exception that they are defined to take place on a specified action rather than at a given time.

In addition to the functionality provided by Remedy's Action Request System, the Trouble Ticketing Service utilizes a set of custom HTML documents to provide registered users with the ability to submit new Trouble Tickets and query the current status of any of their previous entries. Access to the Trouble Ticketing system through this technique provides users an easy method for reporting problems in an environment already familiar to them. Additionally, as another means of Trouble Ticket entry, the Trouble Ticket services provide a text e-mail template through which

automated entry of Trouble Tickets is possible. Support staff members enter Trouble Tickets through the Remedy's Action Request System provided interface for problems received via other methods (e.g., phone calls).

In addition to tracking Trouble Tickets, the Remedy Action Request System also functions as the User Contact Log. Remedy's Action Request System is configured to have a separate schema that contains the entries User Services personnel enter for each contact they have with a user. A user contact log allows a Trouble Ticket to be initiated from a log entry with the push of a button – the Trouble Ticket is populated with information from the contact log.

User Services and other operations personnel use Remedy's Action Request System to perform the functions listed in Table 4.2.3-1.

Table 4.2.3-1. Common ECS Operating Functions Performed with Remedy's Action Request System (1 of 4)

Operating Function	GUI (Section)	Description	When and Why to Use
access Trouble Ticket services	User Tool (4.2.3.2)	• Accessed by clicking on User Tool icon and opening RelB-Trouble Tickets schema • Main Remedy Trouble Ticket screen used to select the appropriate schema for submitting, modifying, or displaying a Trouble Ticket	To submit, query, or work a Trouble Ticket
submit a Trouble Ticket	User Tool (RelB-Trouble Tickets schema) (4.2.3.2)	• Accessed by clicking on User Tool icon and opening RelB-Trouble Tickets schema • Schema used to enter information about the problem	When a problem is either found by or reported to User Services
retrieve a Trouble Ticket	User Tool (RelB-Trouble Tickets schema) (4.2.3.2)	• Accessed by clicking on User Tool icon and opening RelB-Trouble Tickets schema • Trouble Ticket screen that contains information already filled out for a Trouble Ticket • Allows entry of new information about the problem	When information is either added to or received from a Trouble Ticket

Table 4.2.3-1. Common ECS Operating Functions Performed with Remedy's Action Request System (2 of 4)

Operating Function	GUI (Section)	Description	When and Why to Use
forward a Trouble Ticket to another DAAC	User Tool (RelB-Trouble Ticket, RelB-TT-ForwardToSite and RelB-TT-Sites schemas) (4.2.3.2)	• Accessed by clicking on User Tool icon and opening RelB-Trouble Ticket, RelB-TT-ForwardToSite and RelB-TT-Sites schemas • Trouble Ticket contains all forwarding information; once forwarded, it goes to the RelB-TT-ForwardToSite holding area (transparent to the user) • The RelB-TT-Sites schema is used to indicate the site name and email address to be used in forwarding	When a Trouble Ticket is deemed relevant to another site
forward a "closed" Trouble Ticket to the SMC.	User Tool (RelB-Trouble Tickets, RelB-TT-ForwardToSMC and RelB-TT-Sites schemas) (4.2.3.2)	• Accessed by clicking on User Tool icon, opening RelB-Trouble Tickets schema, and selecting a closed trouble ticket • Closed Trouble Ticket contains all forwarding information; once forwarded, it goes to the RelB-TT-ForwardToSMC holding area (transparent to the user) • The RelB-TT-Sites schema is used to indicate the SMC name and email address to be used in forwarding	When a closed trouble ticket has problem resolution information that may be useful to other DAACs
generate reports	User Tool (RelB-Trouble Tickets schema) (4.2.3.2)	• Accessed by clicking on User Tool icon and opening RelB-Trouble Tickets schema • reports to be created can be specified via the Query/Report pull-down menu	When information is needed about one or more Trouble Tickets
add, delete, or update user accounts	User Tool (RelB-User schema) (4.2.3.2.1)	• Accessed by clicking on User Tool icon and opening RelB-User schema • Screen that contains key information about a user account	To add new Remedy users, delete old users or when users change jobs and need new access privileges

Table 4.2.3-1. Common ECS Operating Functions Performed with Remedy's Action Request System (3 of 4)

Operating Function	GUI (Section)	Description	When and Why to Use
Create/Update User Contact Log entry and submit a Trouble Ticket from a log entry	User Tool (Contact Log schema) (4.2.3.2.2)	• Accessed by clicking on User Tool icon and opening RelB-Contact Log schema • Used to classify, track, and report contacts of ECS users and operators	Record user contacts and generate Trouble Tickets if log entry is determined to be a Trouble Ticket
provide a description of a hardware problem that corresponds to a Trouble Ticket	User Tool (Hardware Information schema) (4.2.3.2.3)	• Accessed by clicking on User Tool icon and opening RelB-Hardware Information schema, or via Hardware Information link from Trouble Tickets schema • screen used to enter detailed information about failed hardware components (e.g., part and serial numbers) and the actions taken to correct the problem	If detailed hardware information needs to be provided beyond what can be entered on the Trouble Tickets schema
customize pulldown menus on RelB-Trouble Tickets schema	User Tool (RelB-Menu-Closing Codes, RelB-Menu-Hardware Resources, RelB-Menu-Software Resources, RelB-Menu-Key Words, RelB-Menu-Problem Type, Sites schema) (4.2.3.2.4-4.2.3.2.8)	• Accessed by clicking on User Tool icon and opening: RelB-Menu-Closing Codes, RelB-Menu-Hardware Resources, RelB-Menu-Software Resources, RelB-Menu-Key Words, RelB-Menu-Problem Type, Sites schema • picklist items can be added, deleted, or modified from these schemata	If current menu is inadequate
add, delete, modify a site name and email address	User Tool (RelB-TT-Sites schema) (4.2.3.2.9)	• Accessed by clicking on User Tool icon and opening RelB-TT-Sites schema • Provides a picklist of Version 2.0 sites (DAACs), SMC, NSI, and EBNet	To indicate the site name and email address used in forwarding

Table 4.2.3-1. Common ECS Operating Functions Performed with Remedy's Action Request System (4 of 4)

Operating Function	GUI (Section)	Description	When and Why to Use
notification and/or customization at different states of a Trouble Ticket	Admin Tool and User Tool (RelB-TT-Times schema) (4.2.3.2.10)	• Accessed by clicking on AdminTool to open correct filter, escalation, or active link • Accessed by clicking on User Tool icon and opening RelB-TT-Times schema to review/modify a Trouble Ticket	To notify or set fields as soon as a Trouble Ticket reaches a particular state or escalate once a Trouble Ticket is in a particular state too long
notify the user of a Remedy event	Notification Tool (4.2.3.2.12)	• Accessed by clicking on Remedy Notification Tool icon • Allows properties and options to be modified via pull-down menus	Used as an alternative to email notification
import entries into a particular schema	Import Tool (4.2.3.2.13)	• Accessed by clicking on Remedy Import Tool icon • Enables the user to import entries into a schema from a file generated by the Admin tool	Used to import existing entries rather than retyping information manually
submit a Trouble Ticket via HTML	Trouble Ticket HTML (4.2.3.2.14)	• Accessed by clicking on the Trouble Ticket icon • submit, obtain a list and view details of Trouble Tickets	Used by both User Services and the end user to submit Trouble Tickets without going through Remedy

4.2.3.1 Quick Start Using Remedy's Action Request System

This section describes how to invoke Remedy and provides a description of customized Remedy GUIs. Standard Remedy features (e.g., pull-down menus) are not discussed in this document. For more information on Remedy's Action Request System, refer to the following:

- See *Remedy's Action Request System User's Guide*, Chapter 1 "Overview of the Action Request System," page 1-1
- See *Remedy's Action Request System User's Guide*, Chapter 2 "Getting Started with the User Tool," page 2-1
- See *Remedy's Action Request System User's Guide*, Chapter 3 "Submitting an Action Request," page 3-1
- See *Remedy's Action Request System User's Guide*, Chapter 4 "Reviewing and Modifying Action Requests," page 4-1

- See *Remedy's Action Request System User's Guide*, Chapter 8 "Using the Notification Tool," page 8-1
- For information on the fields of the GUIs shown in this section, please use the Context Sensitive Help that is available for that GUI.

The documentation of AR System used as a basis and referenced in this section is for version/release 2.1.3, contained in ECS Release 4.

4.2.3.1.1 Invoking Remedy's Action Request System From the Command Line Interface

To execute AR User tool from the command line prompt use:

$AR_INSTALL_DIR/bin/aruser &

To execute AR Admin tool from the command line prompt use:

$AR_INSTALL_DIR/bin/aradmin &

To execute AR Notification tool from the command line prompt use:

$AR_INSTALL_DIR/bin/notifier &

To execute AR Import tool from the command line prompt use:

$AR_INSTALL_DIR/bin/arimport &

4.2.3.2 Remedy's User Tool Main Screen (RelB-Trouble Tickets Schema)

Remedy's Action Request System User Tool Main screen is the RelB-Trouble Tickets Schema GUI shown in Figure 4.2.3-2 below. From here Trouble Tickets can be submitted, queried or modified.

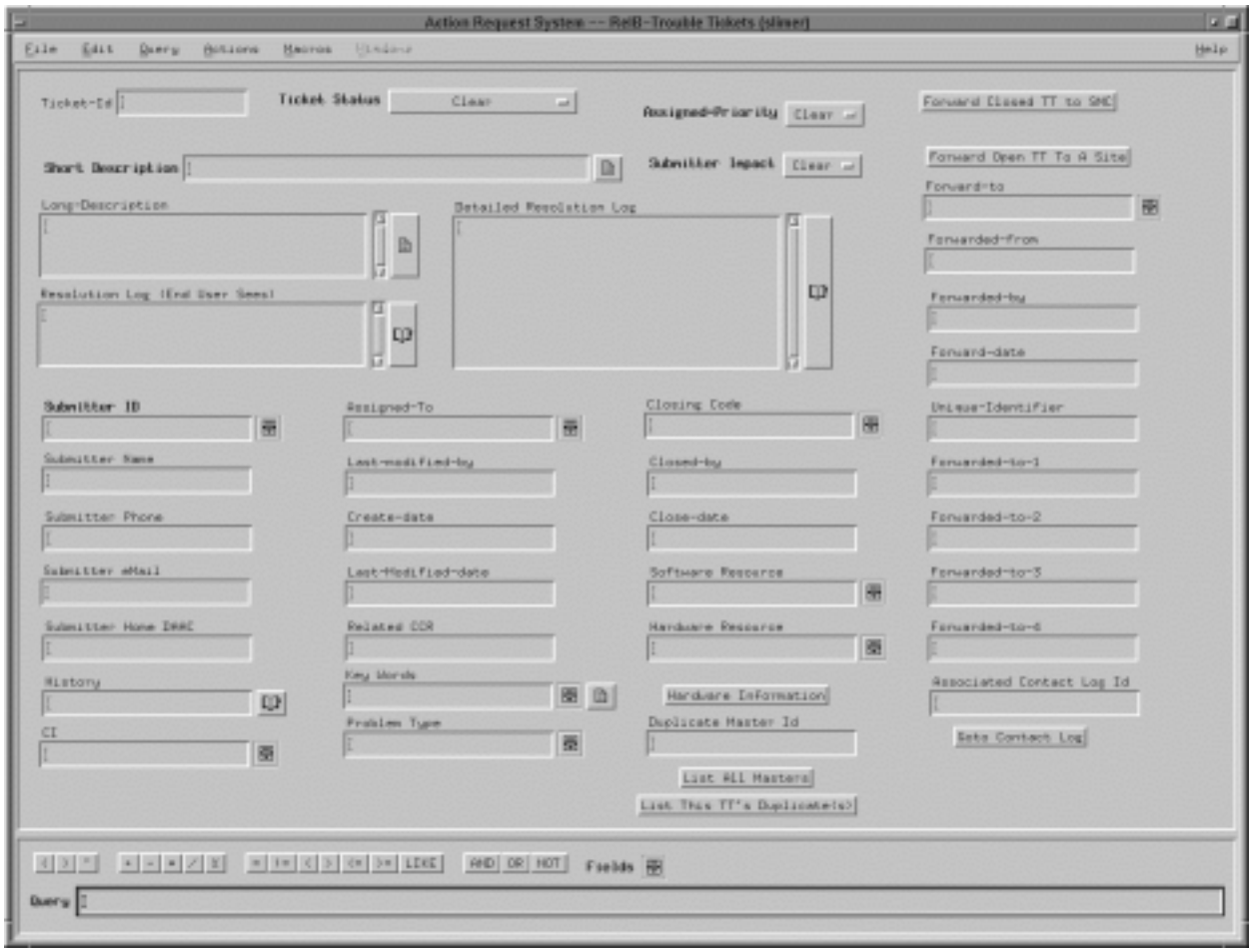

Figure 4.2.3-2. RelB-Trouble Tickets Schema GUI

Table 4.2.3-2 below provides a description of the RelB-Trouble Tickets Schema fields.

Table 4.2.3-2. RelB-Trouble Tickets Field Descriptions (1 of 2)

Field Name	Data Type	Size	Entry	Description
Ticket-Id	Character	15	System generated	Ticket number which is set and maintained by the system
Ticket Status	Selection	4	Required	Status of the Trouble Ticket
Assigned-Priority	Selection	4	Optional	Priority of Trouble Ticket assigned at the site
Short Description	Character	128	Required	Short Description of the problem
Submitter Impact	Selection	4	Required	Impact of the problem to the submitter
Long-Description	Character	600	Optional	Long Description of the problem
Resolution Log (End User Sees)	Diary	Unlim	Optional	General steps in the resolution of the problem
Detailed Resolution Log	Diary	Unlim	Optional	Detailed steps in problem resolution
Submitter ID	Character	30	Required	User Id of the Submitter
Submitter Name	Character	30	Optional	Full Name of the Submitter
Submitter Phone	Character	30	Optional	Phone number of the Submitter
Submitter eMail	Character	64	Optional	E-mail address of the Submitter
Submitter Home DAAC	Character	60	Optional	Home DAAC of the Submitter
History	Diary	Unlim	Optional	• Upon submission or modification, the person assigned to the ticket and the ticket status are indicated in the History field • Due to a limitation in Remedy, this information is only written when the Assigned-to and Status fields are modified
CI	Character	30	Optional	Name of the configuration item to which the problem is associated
Assigned-To	Character	30	Optional	Person who Trouble Ticket has been assigned to
Last-modified-by	Character	30	System generated	Person who last modified the Trouble Ticket
Create-date	Date/Time	4	System generated	Date Trouble Ticket was created at the present site (mm/dd/yy and hh:mm:ss)
Last-Modified-date	Date/Time	4	System generated	Date the Trouble Ticket was last modified (mm/dd/yy and hh:mm:ss)
Related CCR	Character	60	Optional	ID of a related CCR
Key Words	Character	255	Optional	Key words to help identify this Trouble Ticket (e.g., Hardware, Software, Configuration)

Table 4.2.3-2. RelB-Trouble Tickets Field Descriptions (2 of 2)

Field Name	Data Type	Size	Entry	Description
Problem Type	Character	30	Optional	Type of problem addressed by this Trouble Ticket (e.g., Configuration Error, Hardware Problem, Software Problem)
Closing Code	Character	60	Optional	Source of the problem that necessitated the writing of this Trouble Ticket
Closed-by	Character	60	Optional	Person that closed this Trouble Ticket
Close-date	Date/Time	4	Optional	Date this Trouble Ticket was closed
Software Resource	Character	60	Optional	Software Resource that the problem came from
Hardware Resource	Character	60	Optional	Hardware Resource that this problem came from
Duplicate Master Id	Character	25	Optional	The Master Ticket-ID of this Trouble Ticket
Forward-to	Character	60	Optional	Site that this Trouble Ticket was last forwarded to
Forwarded-from	Character	60	Optional	Site that forwarded this Trouble Ticket
Forwarded-by	Character	60	Optional	Contact person at the forwarding site
Forward-date	Date/Time	4	Optional	Date Trouble Ticket was forwarded
Unique-Identifier	Character	20	Optional	• Unique identifier which is established at the origination site • This identifier should NEVER be changed once set
Forwarded-to-1	Character	60	Optional	First site to have been forwarded this Trouble Ticket
Forwarded-to-2	Character	60	Optional	Second site to have been forwarded this Trouble Ticket
Forwarded-to-3	Character	60	Optional	Third site to have been forwarded this Trouble Ticket
Forwarded-to-4	Character	60	Optional	Fourth site to have been forwarded this Trouble Ticket
Associated Contact Log Id	Character	30	Optional	ID number of the Associated Contact Log

In addition to the fields described in the above table, the RelB-Trouble Tickets Schema provides the following buttons (active links):

- **Forward Closed TT to SMC** –Forwards this closed trouble ticket to the SMC.
- **Forward Open TT To A Site (formerly "Forward")** -- Forwards this Trouble Ticket to the site specified in the "Forward-to" field.

- **Hardware Information** -- Opens a window that is associated with this Trouble Ticket to hold hardware information.
- **List All Masters** -- All Trouble Tickets that are duplicates of each other have one master. This button lists all master Trouble Tickets.
- **List This TT's Duplicate(s)** -- List all Trouble Tickets that have duplicates associated with this Trouble Ticket.
- **Go to Contact Log** -- If this Trouble Ticket was created from a Contact Log then this button opens a window to that Contact Log

4.2.3.2.1 Remedy's User Tool Screen (User Schema)

The "User" schema, shown in Figure 4.2.3-3 below, is used by the administrator to add, modify or remove users of the Action Request (AR) System. The "User" schema is used in conjunction with the "Group" schema to provide users with permissions that ultimately determine which operations individual users can perform and which schemas and fields they can access. For more information on the "User" schema and the AR System access control, please refer to the Action Request System Administrator's Guide.

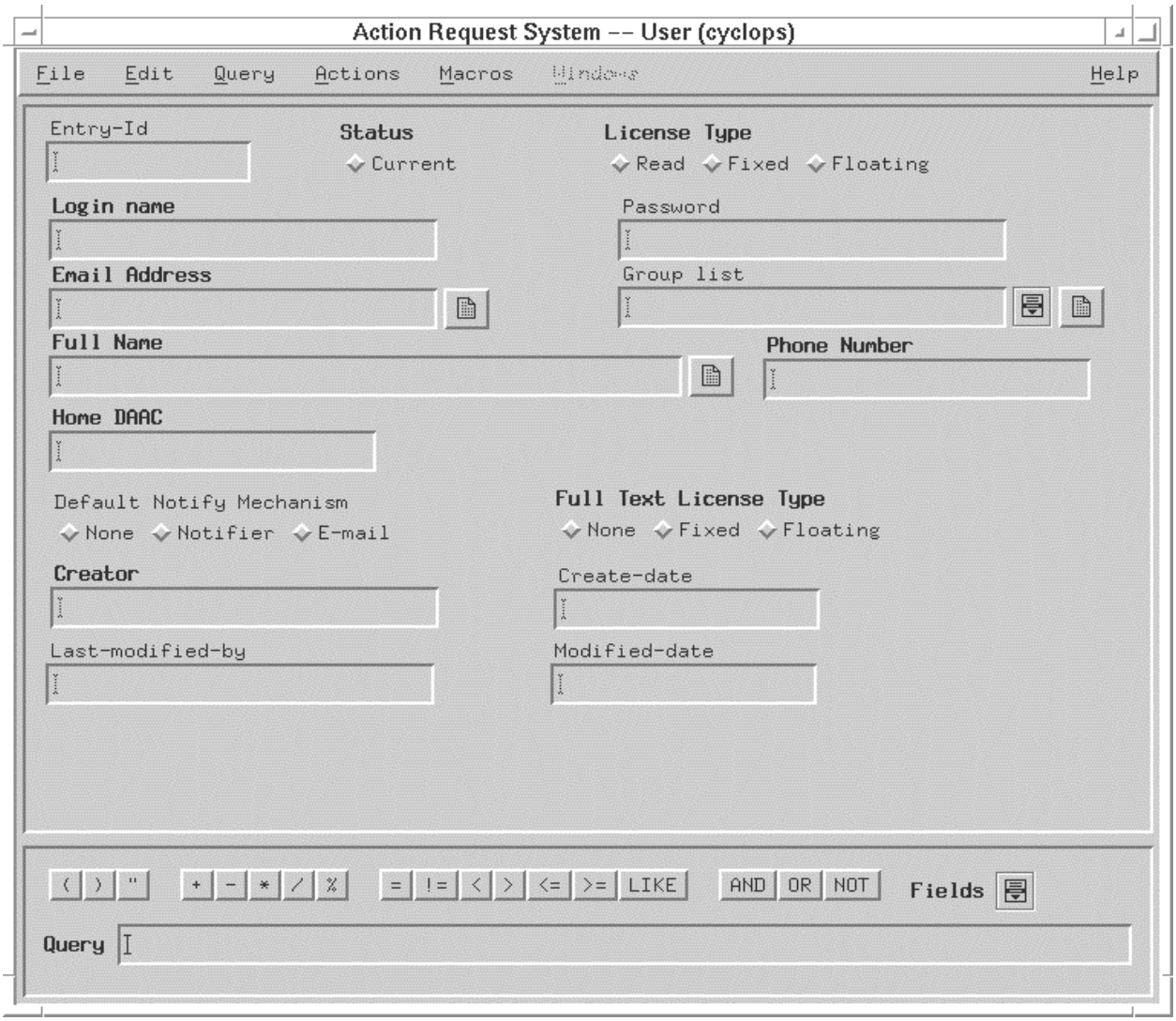

Figure 4.2.3-3. User Schema GUI

Table 4.2.3-3 below provides a description of the User Schema fields.

Table 4.2.3-3. User Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Entry-Id	Character	15	System generated	Entry ID of user
Status	Selection	4	Required	Is user current or not?
License Type	Selection	4	Required	What type of license does this user have? (e.g., read, fixed, floating)
Login name	Character	30	Required	Login name of user
Password	Character	30	Optional	Password of User
Email Address	Character	255	Required	E-mail address of User
Group list	Character	255	Optional	Groups to which the user belongs
Full Name	Character	128	Required	Full Name of User
Phone Number	Character	55	Required	Phone Number of User
Home DAAC	Character	55	Required	Home DAAC of User
Default Notify Mechanism	Selection	4	Optional	Notification method
Full Text License Type	Selection	4	Required	Not applicable
Creator	Character	30	Required	Person who created the user account
Create-date	Date/Time	4	System generated	Date that the entry was created at the present site (mm/dd/yy and hh:mm:ss)
Last-modified-by	Character	30	System generated	User ID of person that last modified the user entry
Modified-date	Date/Time	4	System generated	Date of last modification to user entry (mm/dd/yy and hh:mm:ss)

4.2.3.2.2 Remedy's User Tool Screen (Contact Log Schema)

The Contact Log Schema GUI, shown in Figure 4.2.3-4 below, is used to enter information about a contact to User Services.

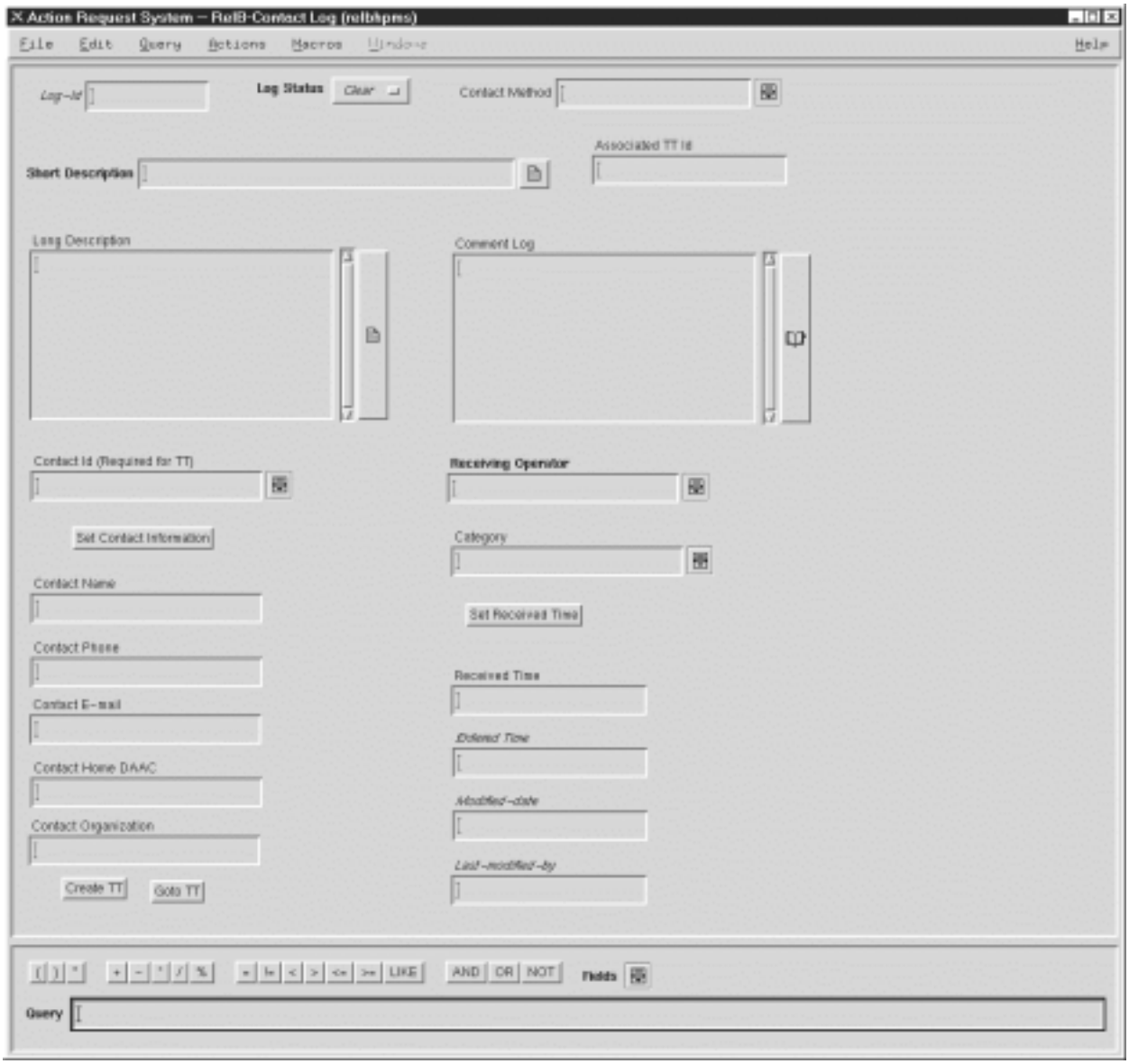

Figure 4.2.3-4. Contact Log Schema GUI

Table 4.2.3-4 below provides a description of the Contact Log Schema fields.

Table 4.2.3-4. Contact Log Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Log-Id	Character	15	System generated	ID of Contact Log
Log Status	Selection	4	Required	Status of Contact Log
Contact Method	Character	50	Optional	Method that was used to contact the person entering the Contact Information
Short Description	Character	128	Required	Short Description of the contact
Associated TT Id	Character	60	Optional	If a Trouble Ticket is created from this Contact Log then this is the related Trouble Ticket ID
Long Description	Character	255	Optional	Long Description of the contact
Comment Log	Diary	Unlim	Optional	Any comments that may pertain to the contact
Contact Id (Required for TT)	Character	30	Optional	User ID of person calling in Required to create a Trouble Ticket
Receiving Operator	Character	30	Required	Person that receives and enters call
Category	Character	60	Optional	Category of the contact
Contact Name	Character	30	Optional	Name of person calling in
Contact Phone	Character	20	Optional	Phone number of person calling in
Contact E-mail	Character	64	Optional	E-mail of person calling in
Contact Home DAAC	Character	60	Optional	Home DAAC of person calling in
Contact Organization	Character	60	Optional	Organization of person calling in
Received Time	Date/Time	4	Optional	Time the contact was first made
Entered Time	Date/Time	4	System generated	Time initial information is entered.
Modified-date	Date/Time	4	System generated	Date of last modification to this Contact Log (mm/dd/yy and hh:mm:ss)
Last-modified-by	Character	30	System generated	User ID of person that last modified this Contact Log (mm/dd/yy and hh:mm:ss)

4.2.3.2.3 Remedy's User Tool (Hardware Information Schema)

The Hardware Information Schema GUI shown in Figure 4.2.3-5 below is used to enter information about a particular piece of hardware that corresponds to a Trouble Ticket.

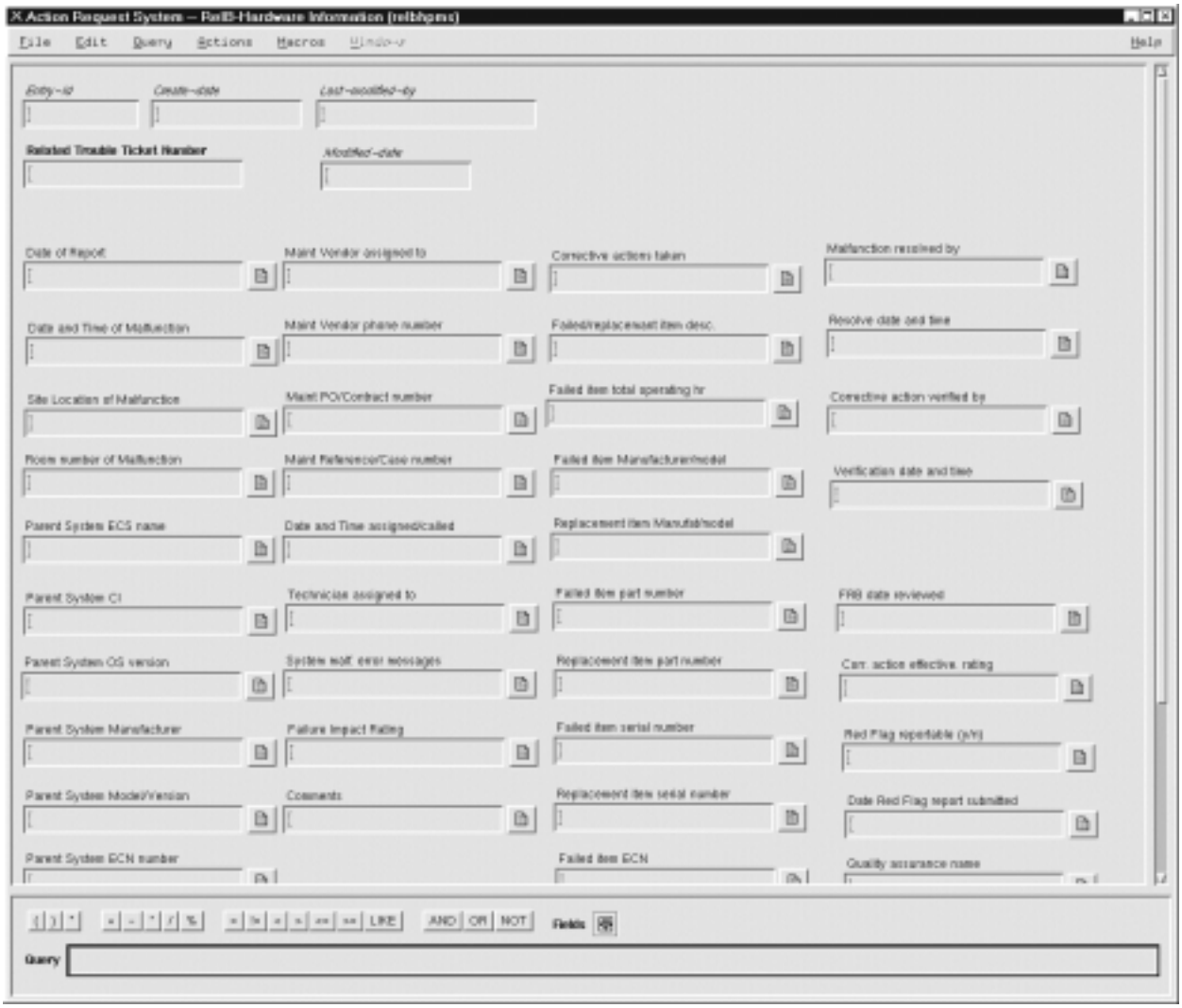

Figure 4.2.3-5. Hardware Information Schema GUI

Table 4.2.3-5 below provides a description of the Hardware Information Schema fields.

Table 4.2.3-5. Hardware Information Schema Field Descriptions (1 of 3)

Field Name	Data Type	Size	Entry	Description
Entry-Id	Character	15	System generated	Entry ID of user
Create-date	Date/Time	4	System generated	Date that the entry was created at the present site (mm/dd/yy and hh:mm:ss)
Last-modified-by	Character	30	System generated	User ID of person that last modified the Hardware Information screen
Related Trouble Ticket Number	Character	30	Required	ID of a related Trouble Ticket
Modified-date	Date/Time	4	System generated	Date of last modification to Hardware Information screen (mm/dd/yy and hh:mm:ss)
Date of Report	Character	255	Optional	Date that the problem was reported (mm/dd/yy and hh:mm:ss)
Date and Time of Malfunction	Character	255	Optional	Date and time that the problem was noticed or approximate time of failure
Site Location of Malfunction	Character	255	Optional	DAAC site where the problem occurred
Room number of Malfunction	Character	255	Optional	DAAC room number where the problem occurred
Parent System ECS name	Character	255	Optional	Site-specific ECS name of the parent system
Parent System CI	Character	255	Optional	Associated Baseline control item ID of parent system
Parent System OS version	Character	255	Optional	Operating system version of the parent system
Parent System Manufacturer	Character	255	Optional	Name of parent system vendor
Parent System Model/Version	Character	255	Optional	Model name and version numbers of the parent system
Parent System ECN number	Character	255	Optional	Equipment control number of parent system
Parent System Serial Number	Character	255	Optional	Serial number of parent system
Parent System total oper. hrs.	Character	255	Optional	Number of cumulative hours the parent system has been in operation (since the last failure)
Maint Vendor assigned to	Character	255	Optional	Name of the vendor contracted to maintain the hardware
Maint Vendor phone number	Character	255	Optional	Maintenance vendor point of contact phone number
Maint PO/Contract number	Character	255	Optional	Purchase order and contract number for maintenance vendor

Table 4.2.3-5. Hardware Information Schema Field Descriptions (2 of 3)

Field Name	Data Type	Size	Entry	Description
Maint Reference/Case number	Character	255	Optional	Reference/case number assigned by the vendor for the hardware problem
Date and Time assigned/called	Character	255	Optional	Date and time that the maintenance vendor was called and notified of the problem
Technician assigned to	Character	255	Optional	Name of vendor maintenance technician
System malf. error messages	Character	255	Optional	Error messages provided by the system
Failure Impact Rating	Character	255	Optional	Failure criticality or severity rating
Comments	Character	255	Optional	Field to provide any additional comments
Corrective actions taken	Character	255	Optional	Actions taken to resolve the problem
Failed/replacement item desc.	Character	255	Optional	Description of the failed component and its replacement
Failed item total operating hr	Character	255	Optional	Number of hours the failed component was used in operation
Failed item Manufacturer/model	Character	255	Optional	Manufacturer name and model number of failed component
Replacement item Manufat/model	Character	255	Optional	Manufacturer name and model # of replacement component
Failed item part number	Character	255	Optional	Vendor part number of failed component
Replacement item part number	Character	255	Optional	Vendor part number of replacement component
Failed item serial number	Character	255	Optional	Serial number of failed component
Replacement item serial number	Character	255	Optional	Serial number of replacement component
Failed item ECN	Character	255	Optional	Equipment control number of failed component
Replacement item ECN	Character	255	Optional	Equipment control number of replacement component
Time to repair in clock hours	Character	255	Optional	Elapsed time (not including delays) in clock hours taken to troubleshoot and isolate the problem, replace the component, and test and verify the fix
Total sys. down time clock hrs	Character	255	Optional	Elapsed time in clock hours that the system was down for repair (includes administrative and logistical delays)
Malfunction resolved by	Character	255	Optional	Name of person who resolved the problem

Table 4.2.3-5. Hardware Information Schema Field Descriptions (3 of 3)

Field Name	Data Type	Size	Entry	Description
Resolve date and time	Character	255	Optional	Date and time the problem was resolved (see Remedy documentation for the most efficient format)
Corrective action verified by	Character	255	Optional	Person who verified that the problem has been resolved
Verification date and time	Character	255	Optional	Date and time that problem resolution was verified
FRB date reviewed	Character	255	Optional	Date the Failure Review Board reviewed the problem and corrective action
Corr. action effective. rating	Character	255	Optional	Effectiveness rating assigned by Failure Review Board (FRB)
Red Flag reportable (y/n)	Character	255	Optional	Record of FRB determining if the problem meets Red Flag reporting criteria
Date Red Flag report submitted	Character	255	Optional	If the problem meets Red Flag criteria, the date it was reported
Quality assurance name	Character	255	Optional	Name of quality assurance person reviewing the problem and its resolution
Quality assurance date	Character	255	Optional	Date the quality assurance person reviewed the problem and its resolution
ECS closure authority name	Character	255	Optional	Name of person from the ECS review board who can close the Trouble Ticket
ECS closure authority date	Character	255	Optional	Date the ECS review board closed the Trouble Ticket
GSFC malfunction report date	Character	255	Optional	Date the malfunction was reported to the GSFC review board
GSFC final approval name	Character	255	Optional	Name of person from GSFC review board who can approve problem and its resolution
GSFC final approval date	Character	255	Optional	Date approved by GSFC review board

4.2.3.2.4 Remedy's User Tool (RelB-Menu-Closing Codes Schema)

The RelB-Menu-Closing Codes schema GUI, shown in Figure 4.2.3-6 below, is used to add, delete, or modify the list of closing code choices for the field, Closing Code.

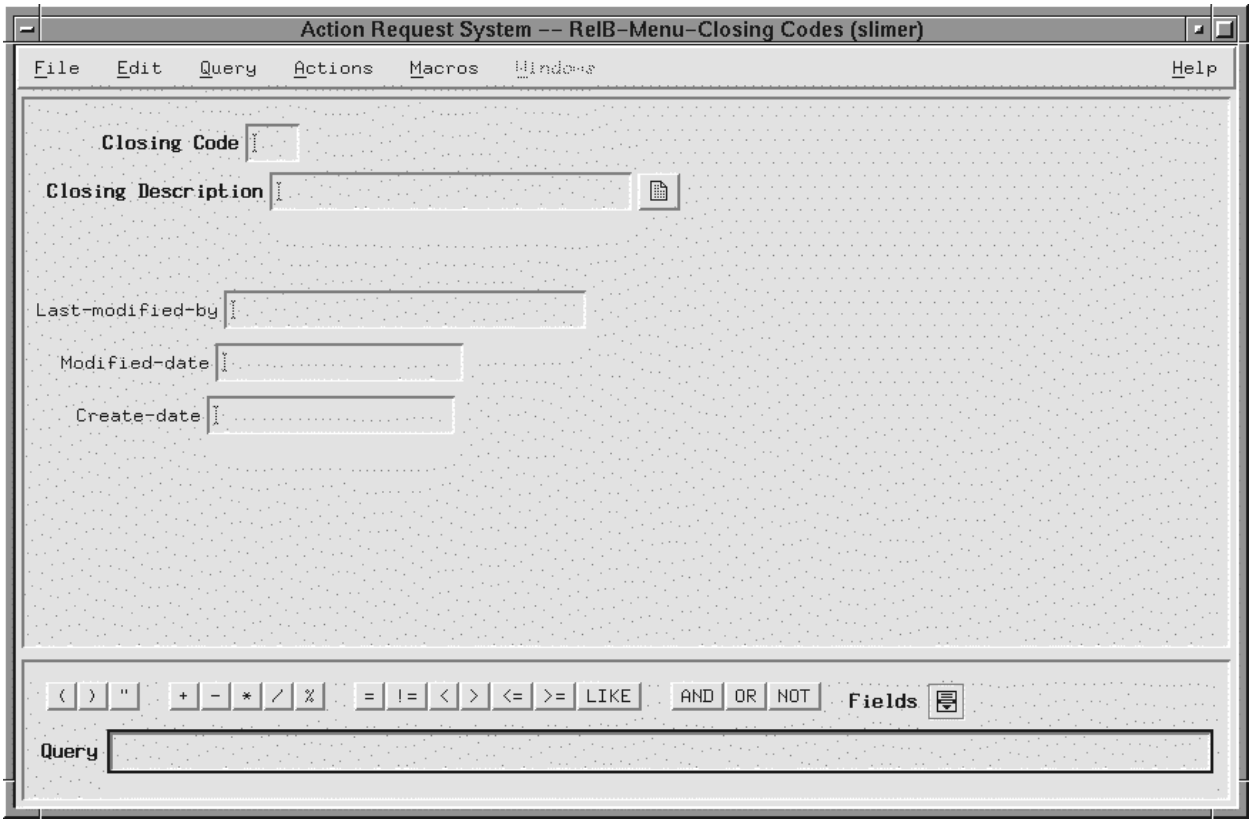

Figure 4.2.3-6. RelB-Menu-Closing Codes Schema GUI

Table 4.2.3-6 below provides a description of the RelB-Menu-Closing Code schema fields.

Table 4.2.3-6. RelB-Menu-Closing Codes Field Descriptions

Field Name	Data Type	Size	Entry	Description
Closing Code	Character	2	Required	Two letter code that corresponds with the Closing Description; this is where codes can be added, deleted or changed
Closing Description	Character	128	Required	Problem summary
Last-modified-by	Character	30	System generated	User ID of person that last modified the closing codes
Modified-date	Date/Time	4	System generated	Date of last modification to closing codes (mm/dd/yy and hh:mm:ss)
Create-date	Date/Time	4	System generated	Date the closing codes were created at the present site (mm/dd/yy and hh:mm:ss)

4.2.3.2.5 Remedy's User Tool (RelB-Menu-Hardware Resources Schema)

The RelB-Menu Hardware Resources Schema GUI, shown in Figure 4.2.3-7 below, is where one adds, deletes, or modifies the hardware resource choices for the field, Hardware Resource.

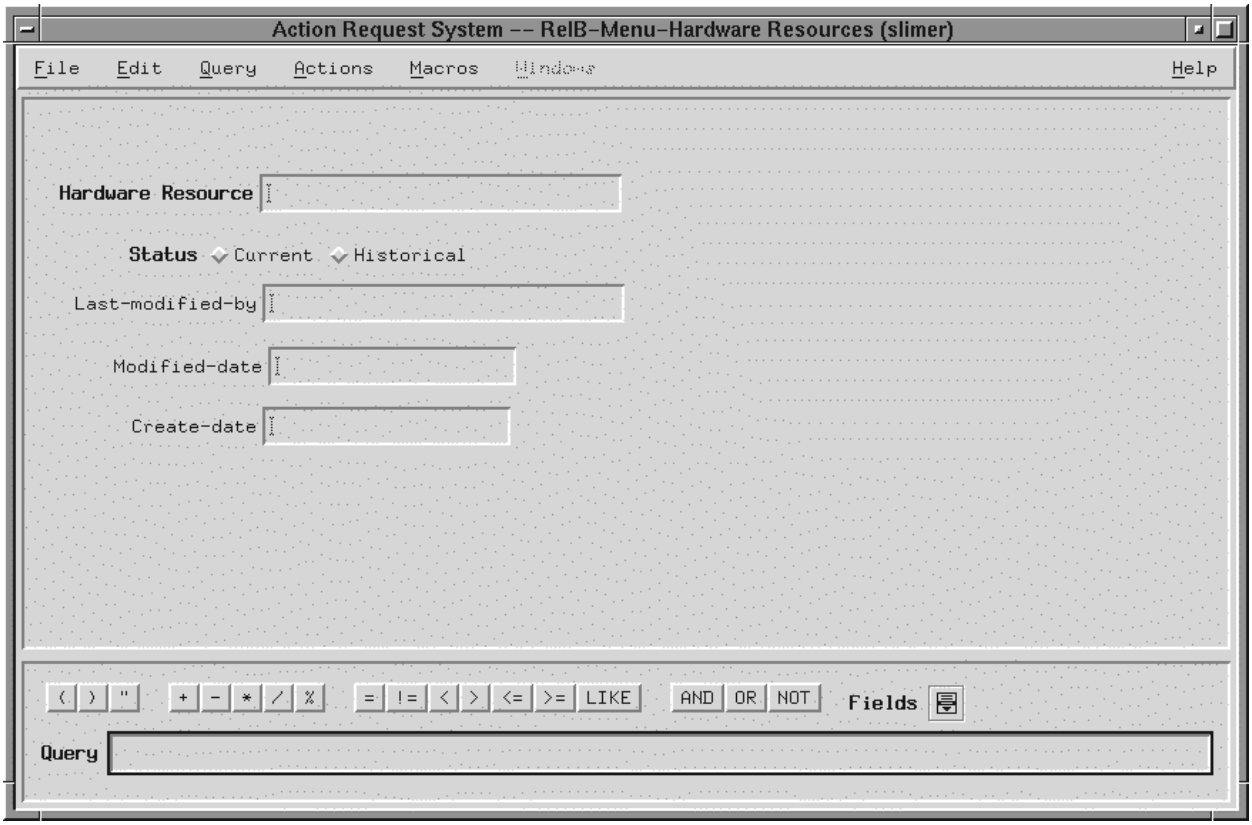

Figure 4.2.3-7. Tool RelB-Menu-Hardware Resources Schema GUI

Table 4.2.3-7 below provides a description of the RelB-Menu-Hardware Resources Schema fields.

Table 4.2.3-7. RelB-Menu-Hardware Resources Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Hardware Resource	Character	30	Required	Hardware resource to be added, deleted or modified
Status	Selection	4	Required	Status for this hardware resource
Last-modified-by	Character	30	System generated	User ID of person that last modified the hardware resources
Modified-date	Date/Time	4	System generated	Date of last modification to hardware resources (mm/dd/yy and hh:mm:ss)
Create-date	Date/Time	4	System generated	Date the hardware resource was created at the present site (mm/dd/yy and hh:mm:ss)

4.2.3.2.6 Remedy's User Tool (RelB-Menu-Key Words Schema)

The RelB-Menu-Key Words Schema GUI, shown in Figure 4.2.3-8 below, is used to add, delete, or modify the key word choices for the field, Key Word.

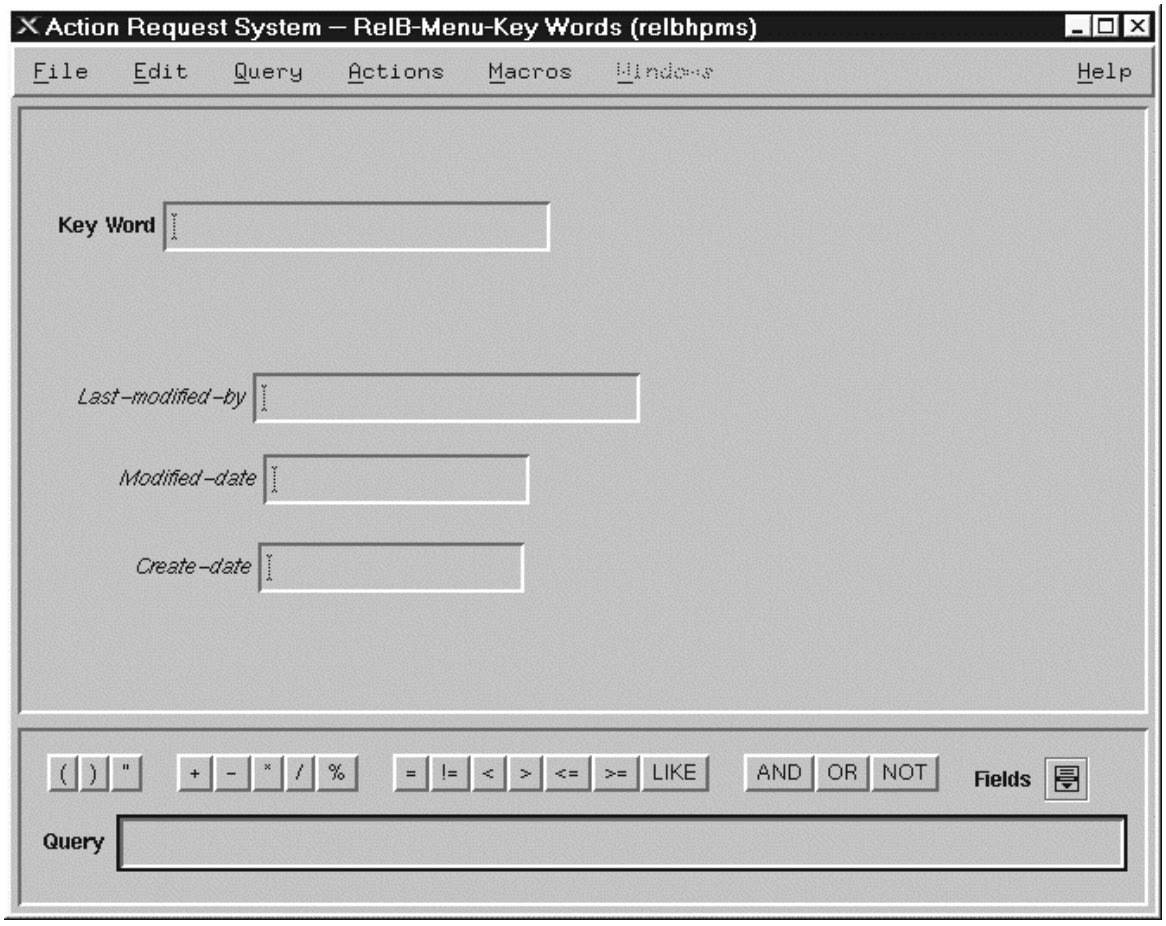

Figure 4.2.3-8. RelB-Menu-Key Words Schema GUI

Table 4.2.3-8 below provides a description of the RelB-Menu-Key Words Schema fields.

Table 4.2.3-8. RelB-Menu-Key Words Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Key Word	Character	30	Required	Key word for the Trouble Ticket; this is where key words can be added, deleted or modified
Last-modified-by	Character	30	System generated	User ID of person that last modified the Key Words
Modified-date	Date/time	4	system generated	Date of last modification to Key Words (mm/dd/yy and hh:mm:ss)
Create-date	Date/time	4	system generated	Date that the Key Words were created at the present site (mm/dd/yy and hh:mm:ss)

4.2.3.2.7 Remedy's User Tool (RelB-Menu-Problem Type Schema)

The RelB-Menu-Problem Type Schema GUI, shown in Figure 4.2.3-9 below, is used to add, delete, or modify the problem type choices for the field, Problem Type.

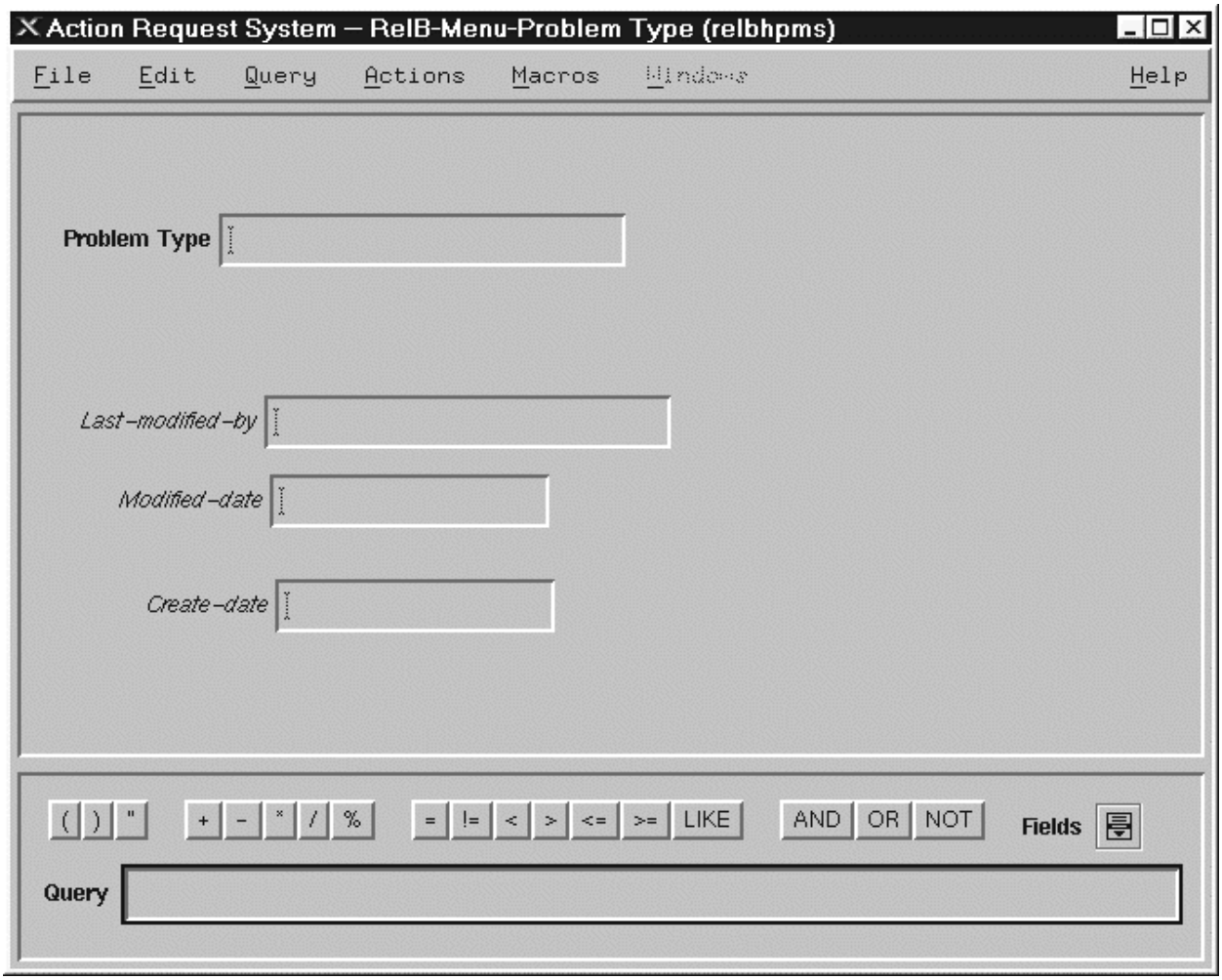

Figure 4.2.3-9. RelB-Menu-Problem Type Schema GUI

Table 4.2.3-9 below provides a description of the RelB-Menu-Problem Type Schema fields.

Table 4.2.3-9. RelB-Menu-Problem Type Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Problem Type	Character	30	Required	Problem type of the Trouble Ticket; this is where problem types can be added, deleted or modified
Last-modified-by	Character	30	System generated	User ID of person that last modified the Problem Type
Modified-date	Date/Time	4	System generated	Date of last modification to Problem Type (mm/dd/yy and hh:mm:ss)
Create-date	Date/Time	4	System generated	Date the Problem Type was created at the present site (mm/dd/yy and hh:mm:ss)

4.2.3.2.8 Remedy's User Tool (RelB-Menu-Software Resources Schema)

The RelB-Menu-Software Resources Schema GUI, shown in Figure 4.2.3-10 below, is used to add, delete, or modify the software resource choices for the field, Software Resource.

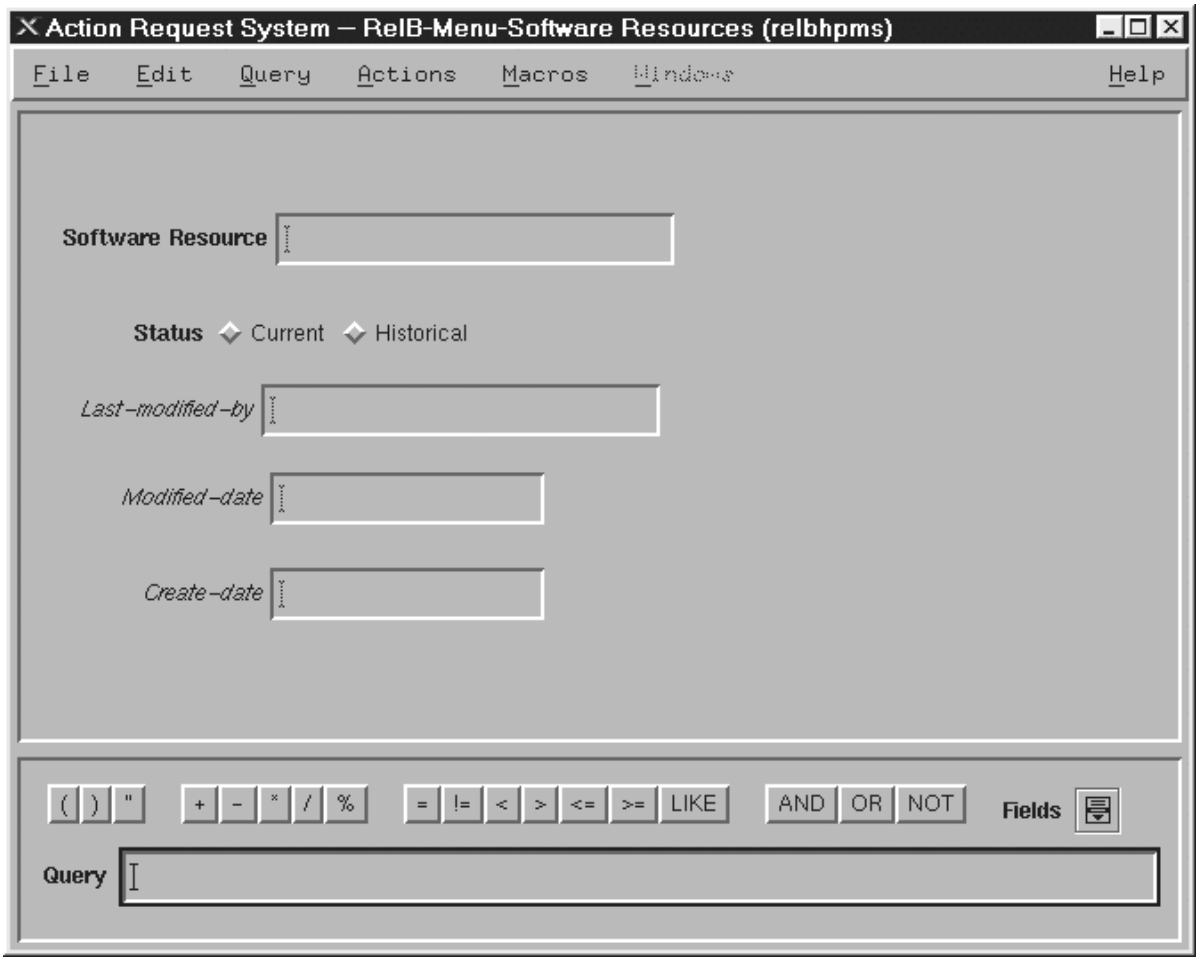

Figure 4.2.3-10. RelB-Menu-Software Resources Schema GUI

Table 4.2.3-10 provides a description of the RelB-Menu-Software Resource Schema fields.

Table 4.2.3-10. RelB-Menu-Software Resources Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Software Resource	Character	30	Required	Software resource to be added, deleted or modified
Status	Selection	4	Required	Current or historical status of this software resource
Last-modified-by	Character	30	System generated	User ID of person that last modified the software resources
Modified-date	Date/Time	4	System generated	Date of last modification to software resources (mm/dd/yy and hh:mm:ss)
Create-date	Date/Time	4	System generated	Date the software resources were created at the present site (mm/dd/yy and hh:mm:ss)

4.2.3.2.9 Remedy's User Tool (RelB-TT-Sites Schema)

The RelB-TT-Sites Schema GUI, shown in Figure 4.2.3-11 below, indicates the site name and email address to be used in forwarding.

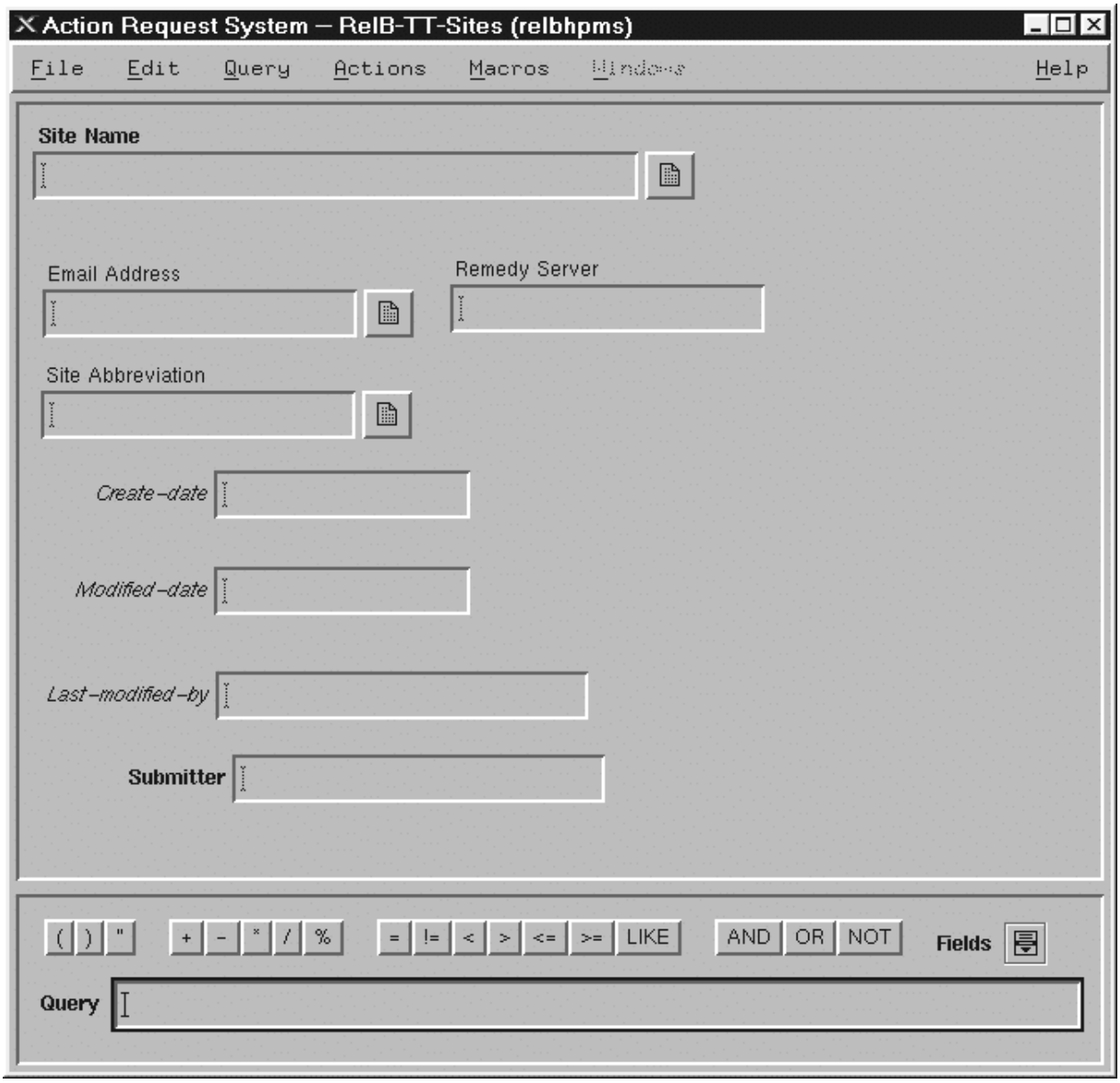

Figure 4.2.3-11. RelB-TT-Sites Schema GUI

Table 4.2.3-11 below provides a description of the RelB-TT-Sites schema fields.

Table 4.2.3-11. RelB-TT-Sites Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Site Name	Character	128	Required	Name of EOS Site
Email Address	Character	255	Optional	E-mail address of EOS Site
Remedy Server	Character	55	Optional	Name of server at site that Remedy is installed
Site Abbreviation	Character	255	Optional	Abbreviation of site name
Create-date	Date/Time	4	System generated	Date the RelB-TT-Sites were created at the present site (mm/dd/yy and hh:mm:ss)
Modified-date	Date/Time	4	System generated	Date of last modification to RelB-TT-Sites (mm/dd/yy and hh:mm:ss)
Last-modified-by	Character	30	System generated	User ID of person that last modified the RelB-TT-Sites
Submitter	Character	30	Required	User ID

4.2.3.2.10 Remedy's User Tool (RelB-TT-Times Schema)

The RelB-TT-Times Schema GUI (Figure 4.2.3-12) is used to indicate escalation times.

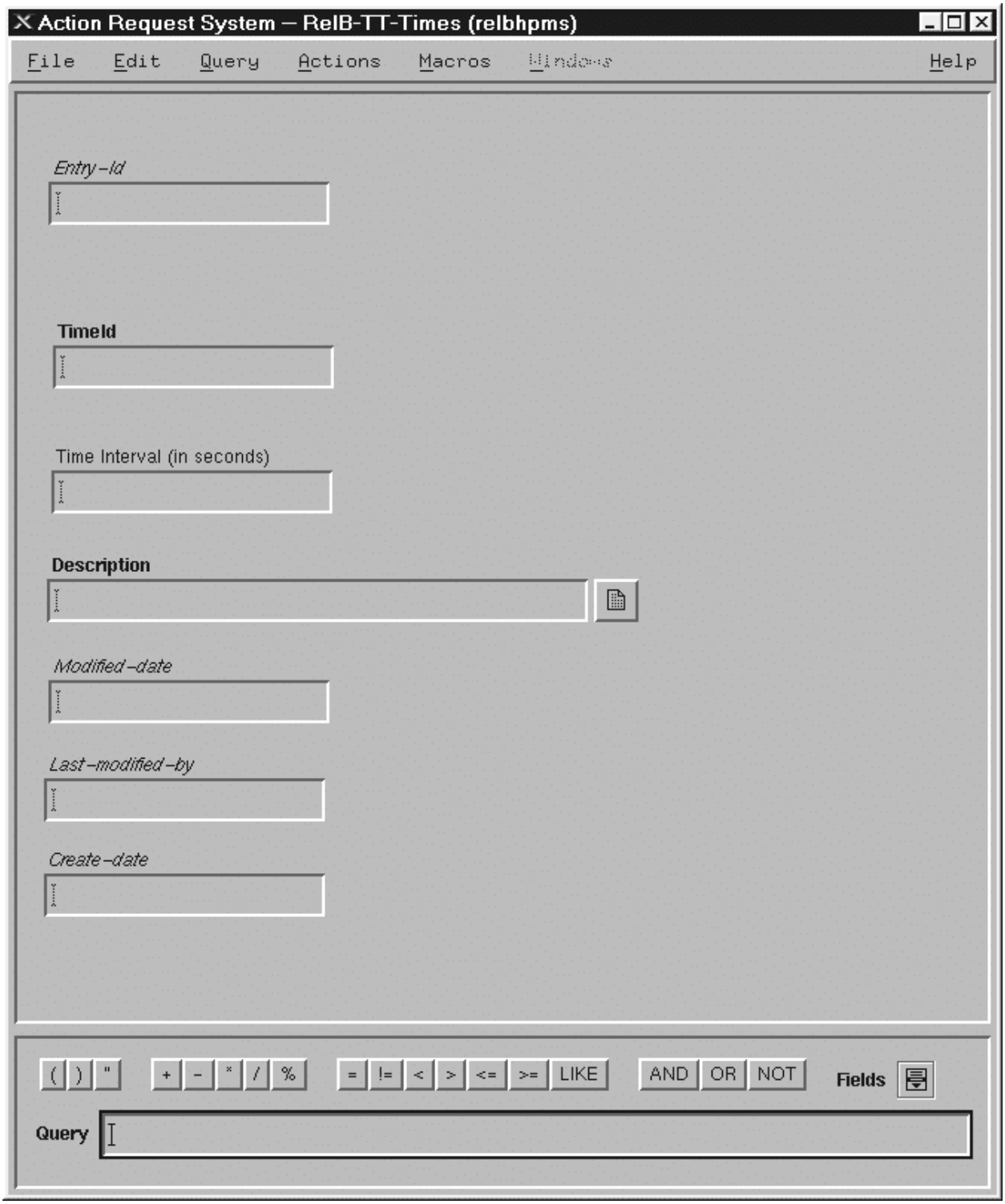

Figure 4.2.3-12. RelB-TT-Times Schema GUI

Table 4.2.3-12 below provides a description of the RelB-TT-Times Schema fields.

Table 4.2.3-12. RelB-TT-Times Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Entry-Id	Character	15	System generated	Entry ID of Time entry
Time-Id	Character	30	Required	Escalation ID of Time entry
Time Interval (in seconds)	Integer	4	Optional	Time interval (in seconds) for escalation to take place
Description	Character	128	Required	What escalation this time corresponds to
Modified-date	Date/Time	4	System generated	Date of last modification to RelB-TT-Sites (mm/dd/yy and hh:mm:ss)
Last-modified-by	Character	30	System generated	User ID of person that last modified the RelB-TT-Sites
Create-date	Date/Time	4	System generated	Date the RelB-TT-Sites were created at the present site (mm/dd/yy and hh:mm:ss)

4.2.3.2.11 Remedy's Admin Tool (Schema List Schema)

For more information on the Schema List schema, see *Remedy's Action Request System User's Guide*, Chapter 1, "Administrator Tool," pages 1-4.

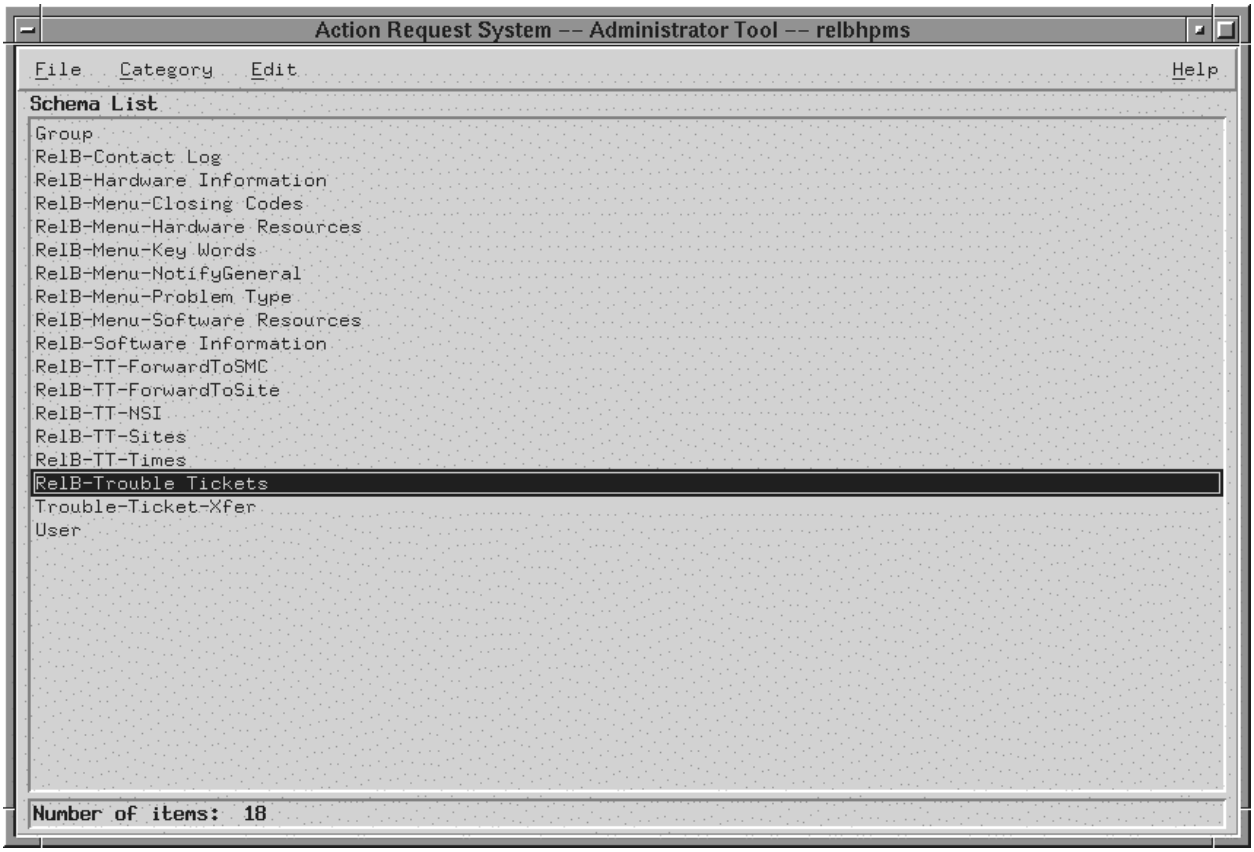

Figure 4.2.3-13. Schema List Schema GUI

Table 4.2.3-13 below provides a description of the Schema Category Menu Options.

Table 4.2.3-13. Schema List Schema Field Descriptions

Field Name	Data Type	Size	Entry	Description
Category-> Schema (List)	Character	Variable	System Generated	List of available schemas.
Category-> Menus (List)	Character	Variable	System Generated	List of available menus.
Category-> Filters (List)	Character	Variable	System Generated	List of available filters.
Category-> Escalations (List)	Character	Variable	System Generated	List of available escalations
Category-> Active Links (List)	Character	Variable	System Generated	List of available active links.

4.2.3.2.12 Remedy's Notification Tool

For more information on the Notification Tool, see *Remedy's Action Request System User's Guide*, Chapter 1, "Notification Tool," pages 1-3.

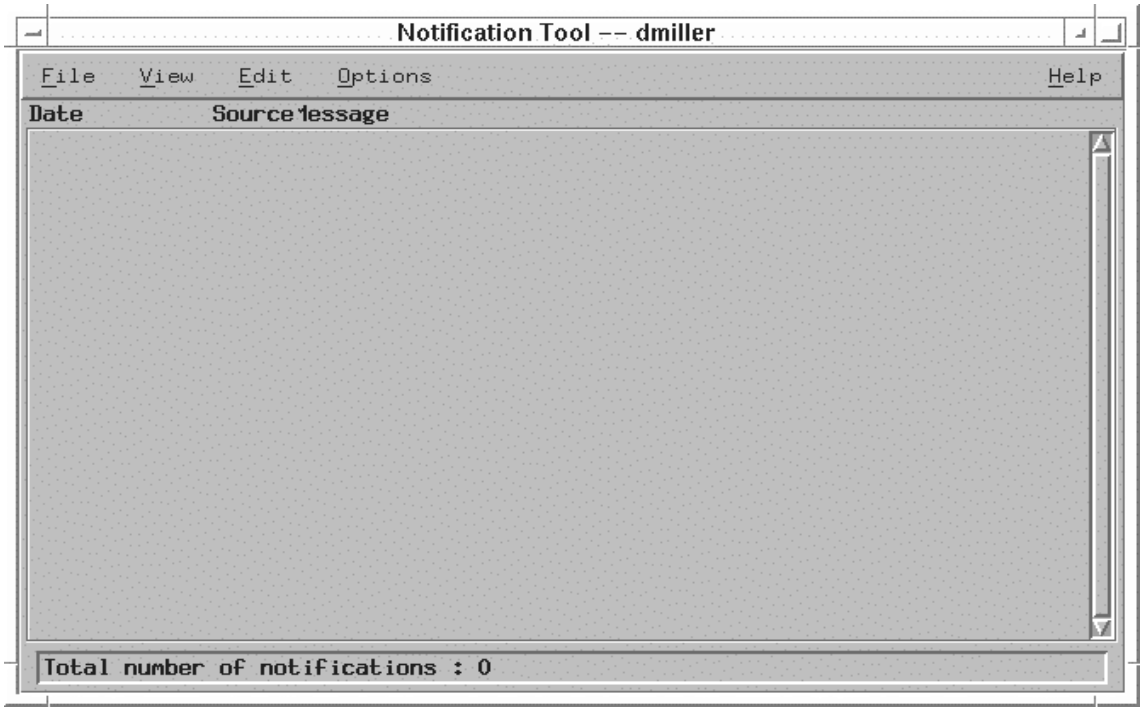

Figure 4.2.3-14. Notification Tool GUI

Table 4.2.3-14 below provides a description of the Notification fields.

Table 4.2.3-14. Notification Field Descriptions

Field Name	Data Type	Size	Entry	Description
Date	Character	Variable	System Generated	Timestamp of the notification
Source	Character	Variable	System Generated	Source of the trouble ticket
Message	Character	Variable	System Generated	The short description from the trouble ticket
Total number of notifications	Integer	Variable	System Generated	Current count of the total number of notifications assigned

4.2.3.2.13 Remedy's Import Tool

For more information on the Import Tool, see *Remedy's Action Request System Administrator's Guide* Chapter 14, "Using the Import Tool, " .

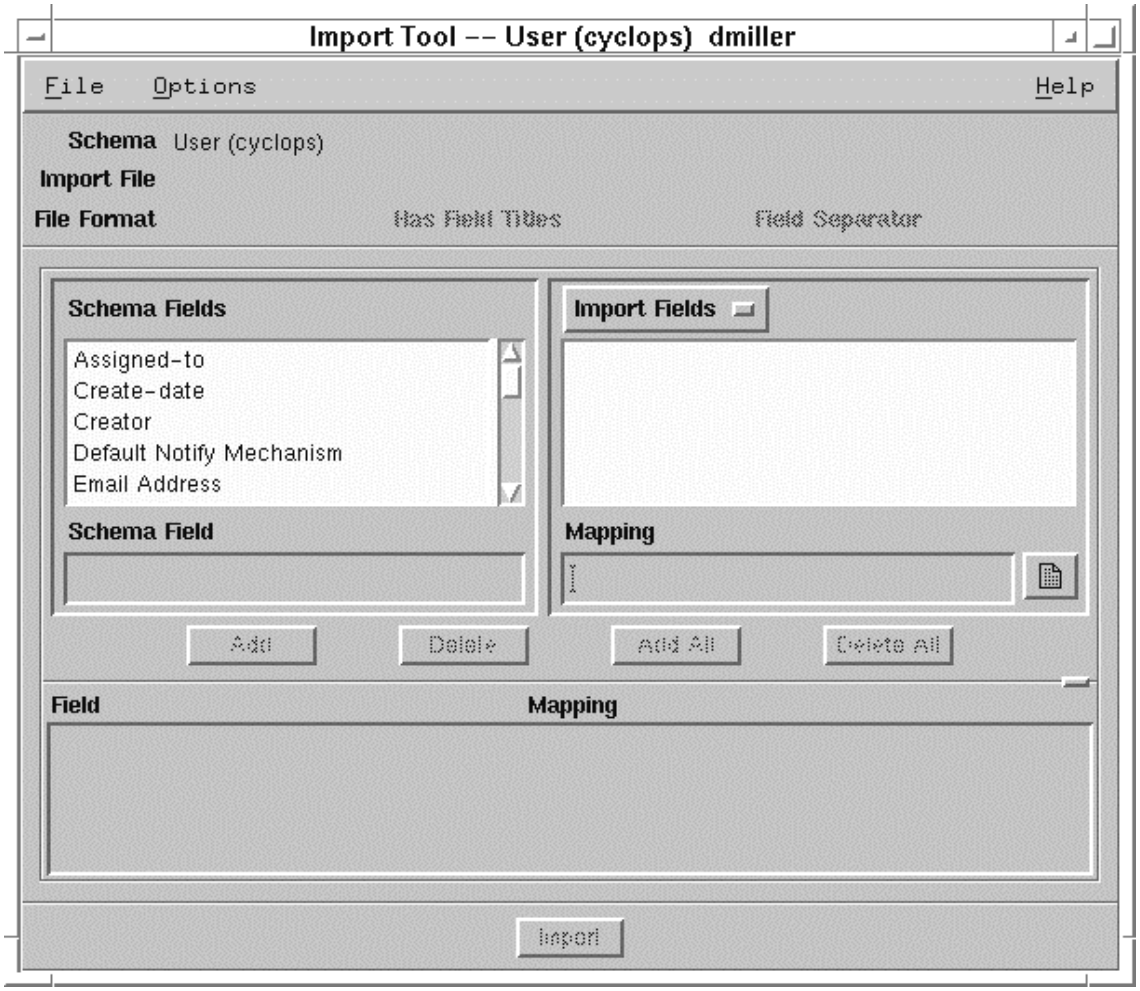

Figure 4.2.3-15. Import Tool GUI

Table 4.2.3-15 below provides a description of the Import fields.

Table 4.2.3-15. Import Field Descriptions

Field Name	Data Type	Size	Entry	Description
Schema	Character	Variable	System Generated	Selected in File-> Open Schema
Import File	Character	Variable	System Generated	Selected in File-> Open Import File
File Format	Character	Variable	System Generated	Selected in File-> Open Import File-> File Formats
Schema Fields	Character	Variable	System Generated	Displays fields available in the selected schema
Import Fields	Character	Variable	System Generated	Fields available in the selected import file
Schema Field	Character	Variable	User Selected	Schema Field chosen to map to the import file field
Mapping	Character	Variable	User Selected	import file field chosen to map to a schema field
Field / Mapping	Character	Variable	System Generated	Displays the chosen import / schema mappings

4.2.3.2.14 Remedy's End-User Trouble Ticketing HTML Main Screen

The HTML Trouble Ticket main screen ("ECS Trouble Ticketing: Menu"), shown in Figure 4.2.3-16 below, provides an introduction on how to use the Trouble Ticketing HTML, and is used by User Services personnel to go to either the Submit page or List page.

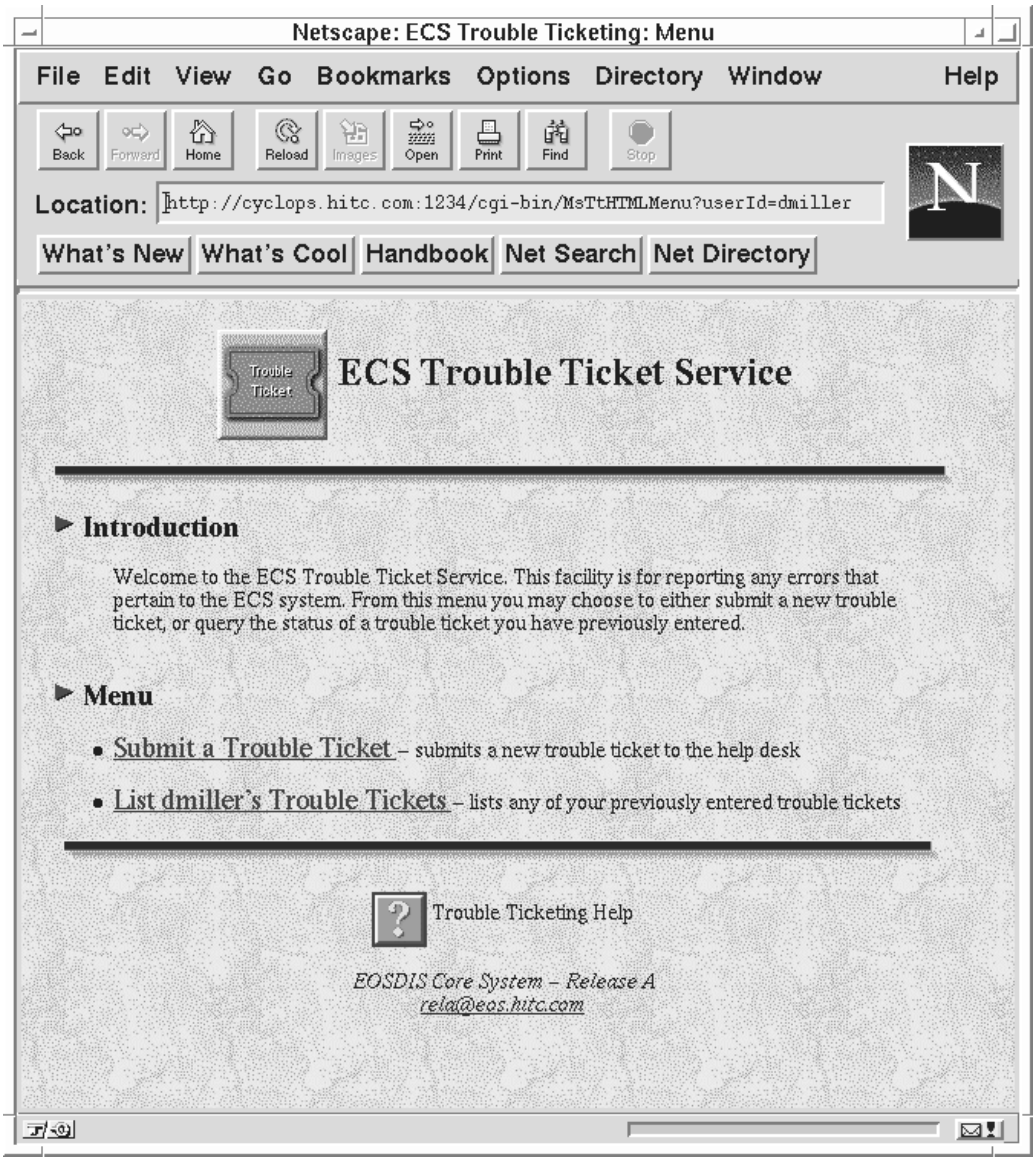

Figure 4.2.3-16. ECS Trouble Ticketing: (Netscape) Menu GUI

Selecting **Submit a Trouble Ticket** brings up the Trouble Ticketing: Submit GUI described in Section 4.2.3.2.15.

Selecting **List [username] Trouble Tickets** brings up the Trouble Ticketing: List GUI described in Section 4.2.3.2.17.

Help on the Trouble Ticket HTML screens is available by clicking on the Ticketing Help at the bottom left corner of the screen (see Section 4.2.3.2.19).

4.2.3.2.15 Remedy's End-User Trouble Ticketing HTML Submit GUI

The HTML Trouble Ticket Submit GUI, shown in Figure 4.2.3-17 below, is used by User Services personnel to Submit a Trouble Ticket.

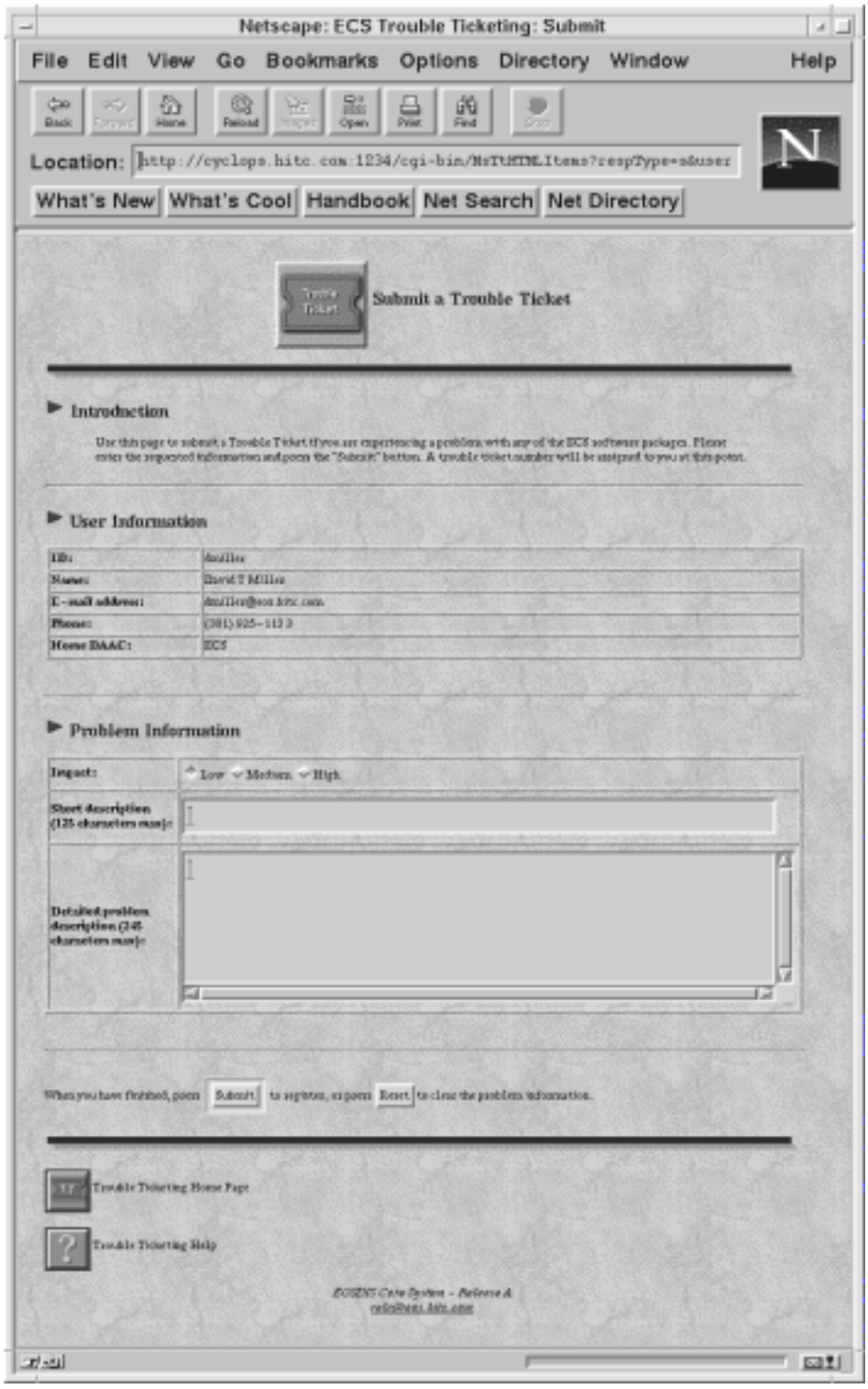

Figure 4.2.3-17. Trouble Ticket HTML Submit GUI

Table 4.2.3-16 below provides a description of the Trouble Ticket HTML Submit fields.

Table 4.2.3-16. Trouble Ticket HTML Submit Screen Field Descriptions

Field Name	Data Type	Size	Entry	Description
ID	character	30	System generated	Submitter Id
Name	character	30	System generated	Submitter Name
E-mail address	character	64	System generated	Submitter E-mail Address
Phone	character	30	System generated	Submitter Phone Number
Home DAAC	character	60	System generated	Submitter Home DAAC
Impact	selection	4	Required	Impact to Submitter
Short description	character	125	Required	Short description of problem
Detailed problem description	character	245	Optional	Long description of problem

When the information is completed, the user can submit the Trouble Ticket by clicking on the **Submit** button on the lower half of the screen. The Problem Information Fields can be cleared by clicking on the **Reset** button. The user also has the choice of returning to the Trouble Ticketing Homepage or going to the Trouble Ticketing Help screen (Section 4.2.3.21) by clicking on the respective icons at the bottom of the page.

4.2.3.2.16 Remedy's End-User Trouble Ticketing HTML Success GUI

The HTML Trouble Ticket Success screen, shown in Figure 4.2.3-18 below, is used by User Services personnel to insure successful submission and report Trouble Ticket Id.

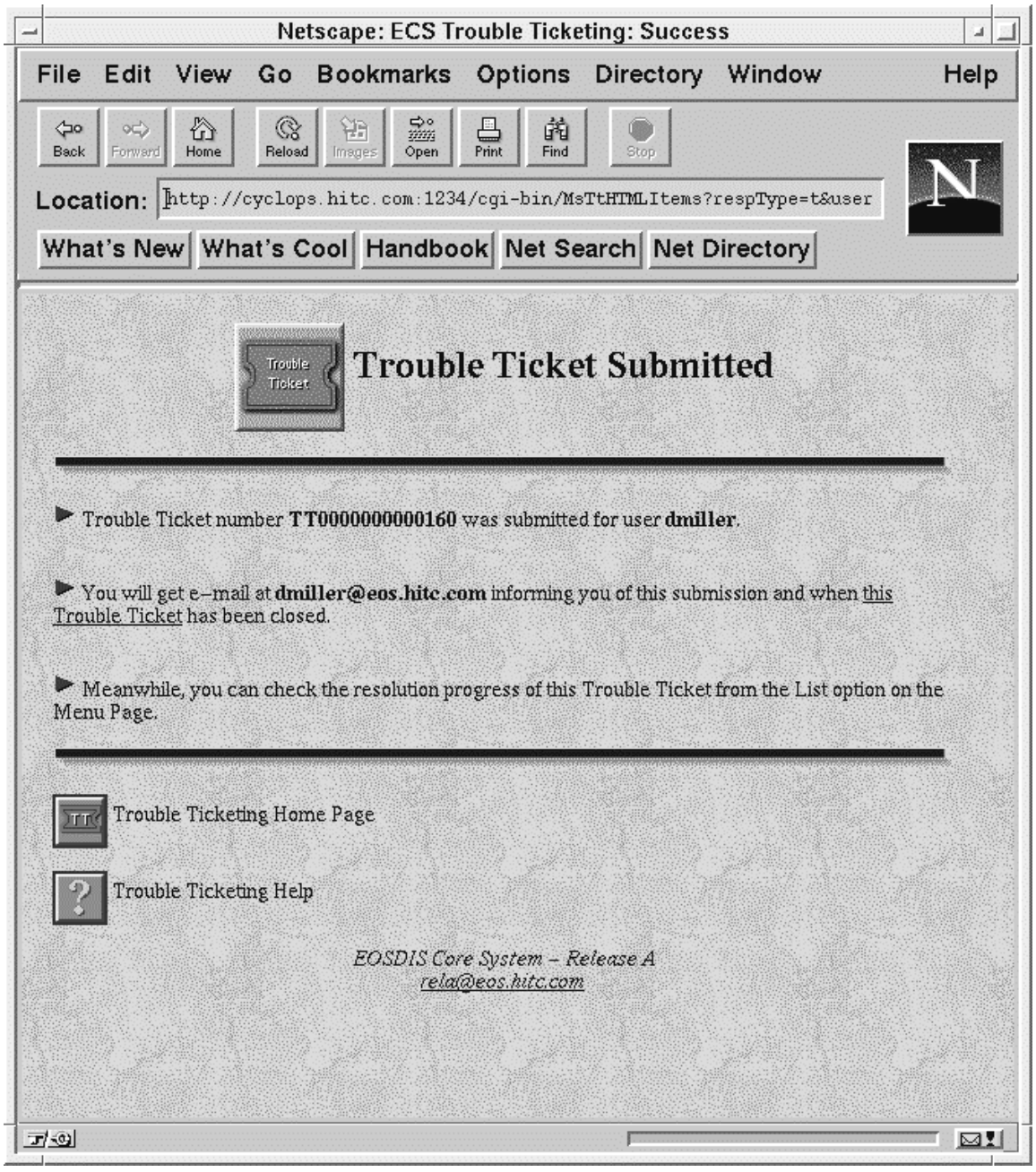

Figure 4.2.3-18. Trouble Ticket HTML Success GUI

From this screen, the user is provided with the following information/options:

- The Trouble Ticket was successfully submitted, Trouble Ticket identification number and who submitted it
- Notification that an e-mail message has been sent to the user indicating that a Trouble Ticket has been submitted and when it was closed. Selecting this Trouble Ticket will open the Trouble Ticket Detailed Screen (see Section 4.2.3.2.18).
- Instructions telling the user how to check the progress of Trouble Ticket resolution.

The user also has the choice of returning to the Trouble Ticketing Homepage or going to the Trouble Ticketing Help screen (Section 4.2.3.2.19) by clicking on the respective icons at the bottom of the page.

4.2.3.2.17 Remedy's End-User Trouble Ticketing HTML List GUI

The HTML Trouble Ticket List GUI, shown in Figure 4.2.3-19 below, is used by User Services personnel to List Trouble Tickets for a user and links the listed Trouble Ticket Number to the Trouble Ticket Detailed GUI (see Section 4.2.3.2.18).

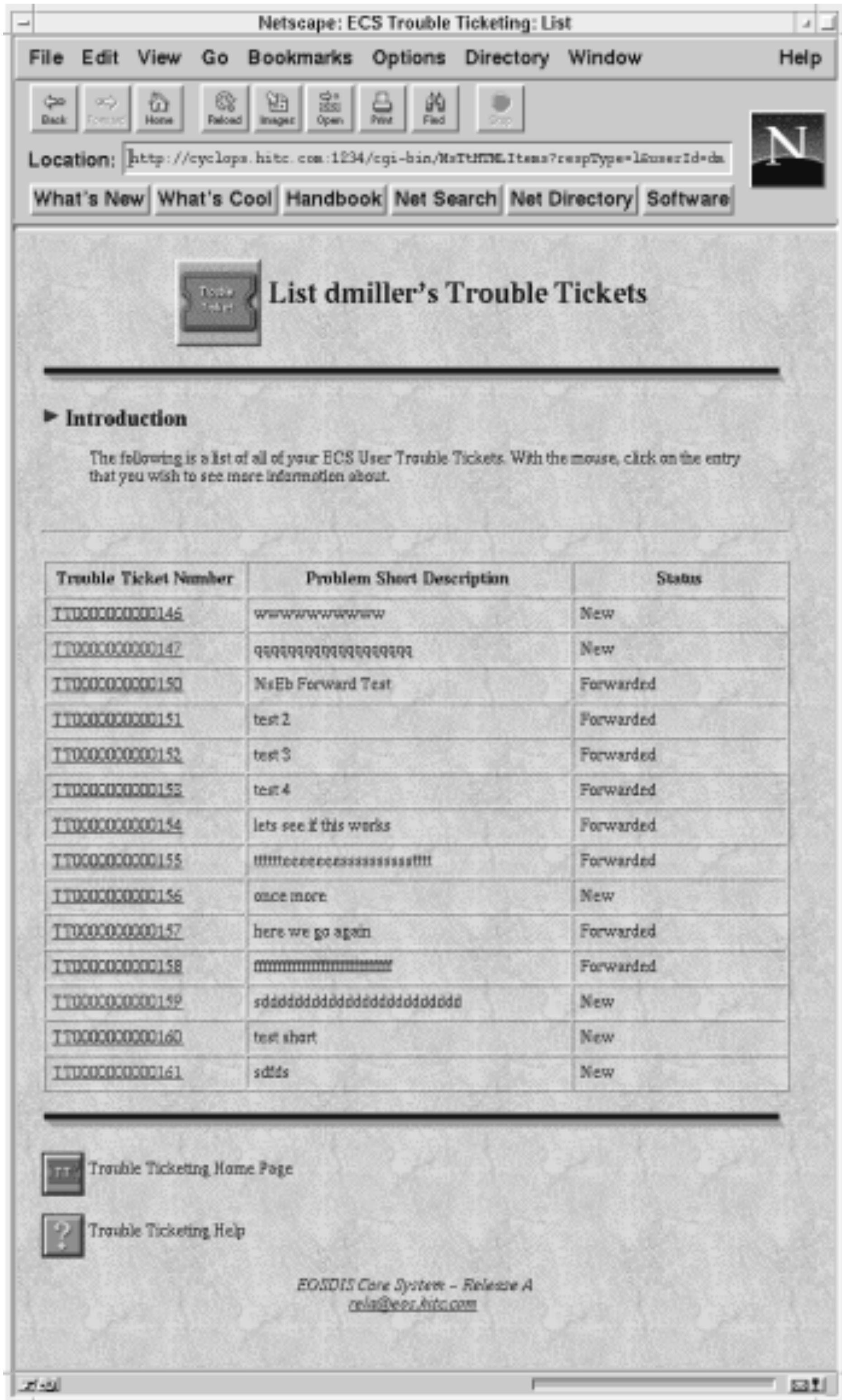

Figure 4.2.3-19. Trouble Ticket HTML List GUI

Table 4.2.3-17 below provides a description of the Trouble Ticket HTML List fields.

Table 4.2.3-17. Trouble Ticket HTML List Field Descriptions

Field Name	Data Type	Size	Entry	Description
Trouble Ticket Number	character	15	System generated	Trouble Ticket Id
Problem Short Description	character	125	System generated	Short Description of Problem
Status	character	20	System generated	Status of Trouble Ticket

The user also has the choice of returning to the Trouble Ticketing Homepage or going to the Trouble Ticketing Help screen (Section 4.2.3.2.19) by clicking on the respective icons at the bottom of the page.

4.2.3.2.18 Remedy's End-User Trouble Ticketing HTML Detailed GUI

The HTML Trouble Ticket Detailed GUI, shown in Figure 4.2.3-20 below, is used by User Services personnel to see a more detailed output of a Trouble Ticket.

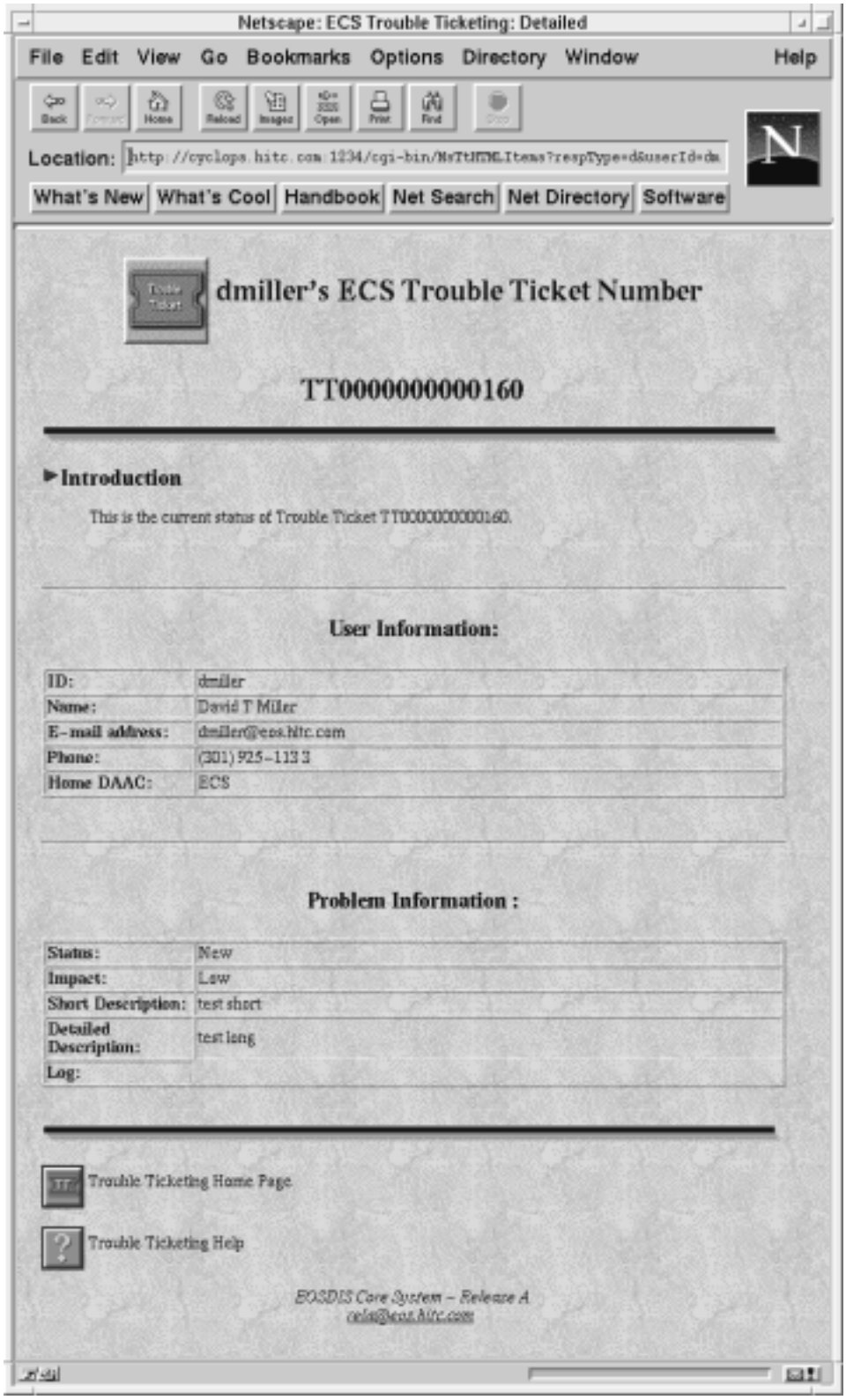

Figure 4.2.3-20. Trouble Ticket HTML Detailed GUI

Table 4.2.3-18 below provides a description of the Trouble Ticket HTML Detailed fields.

Table 4.2.3-18. Trouble Ticket HTML Detailed Field Descriptions

Field Name	Data Type	Size	Entry	Description
ID	character	30	System generated	Submitter Id
Name	character	30	System generated	Submitter Name
E-mail address	character	64	System generated	Submitter E-mail Address
Phone	character	30	System generated	Submitter Phone Number
Home DAAC	character	60	System generated	Submitter Home DAAC
Status	selection	4	System generated	Status of Trouble Ticket
Impact	selection	4	System generated	Impact to Submitter
Short description	character	125	System generated	Short description of problem
Detailed description	character	245	System generated	Long description of problem
Log	character	unlim.	System generated	Diary of problem resolution

The user also has the choice of returning to the Trouble Ticketing Homepage or going to the Trouble Ticketing Help screen (Section 4.2.3.2.19) by clicking on the respective icons at the bottom of the page.

4.2.3.2.19 Remedy's End-User HTML Trouble Ticketing Help GUI

The HTML Trouble Ticket Help GUI, shown in Figure 4.2.3-21 below, is used by User Services personnel to get help with the HTML screens.

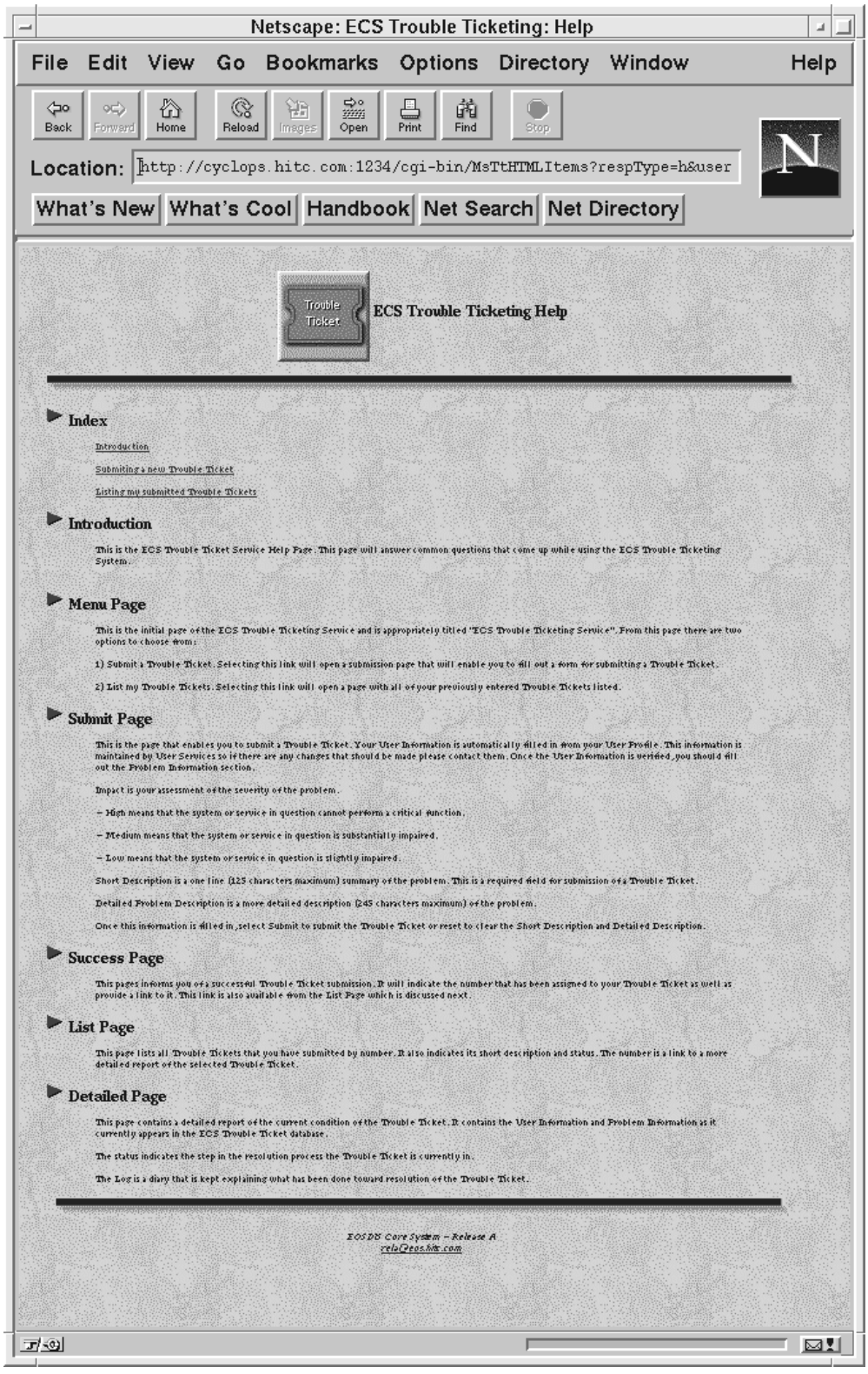

Figure 4.2.3-21. HTML Trouble Ticket Help GUI

This screen provides general information on the following:

- Index -- links that scroll the screen to the Introduction, Submit Page, and List Page sections listed below.
- Introduction – provides information about the Trouble Ticket Help page
- Menu Page – describes the Trouble Ticketing: Menu page (see Section 4.2.3.1.16)
- Submit Page – describes the Trouble Ticket: Submit page (see Section 4.2.3.2.15)
- Success Page – describes the Trouble Ticket: Success page (see Section 4.2.3.2.16)
- List Page – describes the Trouble Ticket: List page (see Section 4.2.3.2.17)
- Detailed Page - describes the Trouble Ticket: Detailed page (see Section 4.2.3.2.18)

4.2.3.3 Required Operating Environment

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled ReadMe file for each product. To find the ReadMe file for Remedy, use the XRP Baseline Manager to determine where in ClearCase the ReadMe file resides.

4.2.3.3.1 Interfaces and Data Types

Remedy's Action Request System exchanges data of various types through interfaces within and external to ECS. Table 4.2.3-19 lists Remedy's Action Request System interfaces for Version 2.0.

Table 4.2.3-19. External Interface Protocols

Interface (facility)	Type of Primary Interface Protocols	Type of Backup Interface Protocols	Comments
Forwarding	E-mail	Default E-mail Backup Interface Protocols	Site to site forwarding of Trouble Tickets
HTML	HTTP	Default HTTP Backup Interface Protocols	End user submission and queries

4.2.3.4 Databases

Remedy's Action Request System is installed on Sybase; it creates, modifies, and deletes tables as schemas are created, modified, and deleted with each column corresponding to a field in the schema. This is all done automatically and is invisible to the user.

4.2.3.5 Special Constraints

Note that while Trouble Tickets and the Contact Log schemas are open to all operators, and that operators have view privileges to the user schema, only system administrators have the ability to modify the schema and tools presented in this section. Privileges are set according to DAAC policy.

4.2.3.6 Outputs

Output from Remedy's Action Request System (besides output to the screen in the form of its GUIs) is in the form of a report either to the printer or to a file (discussed in Section 4.2.3.8) or a log entry as shown in Table 4.2.3-20 below.

In the Remedy **aradmin** tool, you may enable / disable logging at any time. Select File-> Server Information-> Log Files to display the current location of log files that have been enabled. The format of the messages is similar to the Unix syslog as seen in this example:

Table 4.2.3-20. Remedy Log File Messages Example

Mon Feb 23 16:28:16 1998 390600 : Failure during SQL operation to the database (ARERR 552)
Mon Feb 23 16:28:16 1998 Unable to connect: SQL Server is unavailable or does not exist. (Sybase 20009) : Connection refused
Mon Feb 23 16:28:16 1998 Unable to connect: SQL Server is unavailable or does not exist. (Sybase 20009) : Connection refused

4.2.3.7 Event and Error Messages

For Remedy's Action Request System's system messages see the *Action Request System Troubleshooting and Error Messages Guide*, Chapter 1 "Trouble Shooting", page 1-1, and Chapter 2 "Error Messages", page 2-1.

Table 4.2.3-21 below lists non-system failure related messages which appear on the operator's screen.

Table 4.2.3-21. Non-Failure Related Error Messages

Error Message String	Cause	Action
You have to assign the trouble ticket to somebody	Setting the Status to Assigned without setting the Assigned-to field	Set Assigned-to field
You have to assign a Closing Code to close	Setting Status to Closed without a Closing Code.	Set Closing Code field
Trouble Ticket's status must be "Closed" and its Closing Code field must have a value before forwarding is allowed with this button.	Attempting to forward an open ticket using the "Forward Closed TT to SMC" button	Wait until the ticket is closed before attemping to forward it using the aforementioned button.
You can only submit a Trouble Ticket with your login id	Trying to submit Trouble Ticket using someone else's user ID	Use your user ID
Trouble Ticket number $Ticket-Id$ has already been forwarded to or otherwise opened at $Forward-to$	Already forwarded Trouble Ticket to site in Forward-to field	Check Forward-to site name against the sites that have already been forwarded the Trouble Ticket
Must change status to "Forwarded" and fill in the "Forward-to" field	Must set the indicated fields before the Trouble Ticket can be forwarded	Check Forward-to and Status fields to ensure that they have the appropriate values
This closed trouble ticket has already been sent to the SMC	Attempting to forward a copy of a closed ticket to the SMC and a copy has already been forwarded.	Dismiss Display window and make no further attempts to forward this ticket.
There is not an Associated Contact Log Id for this Trouble Ticket	Trying to access a Contact Log that is not associated with a Trouble Ticket through the RelB-Trouble Tickets schema	You can't access the Contact Log for this Trouble Ticket because it does not exist
There has not been a Trouble Ticket created for this log	Trying to access a Trouble Ticket that is not associated with a Contact Log through the RelB-Contact Log schema	You can't access the Trouble Ticket for this Contact Log because it does not exist
A Trouble Ticket will not be created. A Trouble Ticket has already been opened for this log	Trying to create a Trouble Ticket via the Contact Log that has already been created	You can't open a Trouble Ticket for this Contact Log since one has already been opened
A Trouble Ticket cannot be created. Contact Id required for Trouble Ticket submission	Contact ID is required for creation of a Trouble Ticket via the Contact Log	Set the Contact ID field
A Trouble Ticket cannot be created without a Log Id	Trying to create a Trouble Ticket via a Contact Log that has not yet been saved and hence has no Contact ID	Select Apply to assign a Log ID then try and create a Trouble Ticket again

4.2.3.8 Reports

The Remedy Action Request System issues the reports described in Table 4.2.3-22 below.

Table 4.2.3-22. Reports

Report Type	Report Description	When and Why Used
Ticket Status Report	indicates the status of a set of trouble tickets based on a particular criteria (e.g., by date range, assigned-user, status...)	When and if someone wants to know the status of a set of trouble tickets based on a particular criteria (e.g., by date range, assigned-user, status...)
Hardware Resource Report	indicates by resource, the number and type of problems encountered by the affected resource	When and if someone wants to know by resource the number and type of problems encountered by affected resource
Trouble Ticket User Report (Number of Tickets by Submitter)	indicates by submitter, the number and type of trouble tickets in the system	When and if someone wants to know by submitter the number and type of trouble tickets in the system
Trouble Ticket Statistics Report (Average Time to Close)	indicates for a particular criteria, statistical information such as mean time to close.	When and if someone wants to know for a particular criteria statistical information such as mean time to close
Number of Trouble Tickets by Status	provides a summary of the number of tickets by status.	When and if someone wants to know a summary of the number of tickets by status
Number of Tickets by Assigned Priority	provides a summary of the number of tickets by priority.	When and if someone wants to know a summary of the number of tickets by priority
Trouble Ticket Status Report (SMC)	provides a summary of the tickets by status for importing into Excel	When and if someone wants to import a summary of the tickets into Excel
custom reports	TTS allows for both extensive customization of the above reports and creation of new ones. The reporting capabilities include the capability to display not only data contained in the database but also statistical and correlation functions on that data	When and if someone wants to know more than is available through the previous reports

4.2.3.8.1 Sample Reports

Below are examples of sample reports that can be generated from the Trouble Ticket schema. These sample reports include: Ticket Status, Hardware Resource, Number of Tickets by Submitter, Average Time to Close, Number of Trouble Tickets by Status, Number of Tickets by Assigned Priority, and a Summary Report (imported into Excel).

Ticket Status Report

Ticket Status	Ticket-Id
New	TT0000000000148
	TT0000000000139
	TT0000000000142
	TT0000000000146
	TT0000000000144
	TT0000000000147
Sum = 6	

Ticket Status	Ticket-Id
Assigned	TT0000000000149
Sum = 1	

Ticket Status	Ticket-Id
Closed	TT0000000000143
Sum = 1	

****

Figure 4.2.3-22. Trouble Ticket Status Report

Hardware Resource Report

```
Hardware Resource
--------------------
slimer
Number of Associated Tickets = 1


epserver
Number of Associated Tickets = 4


cyclops
Number of Associated Tickets = 3
**********************************************************************
```

Figure 4.2.3-23. Hardware Resource Report

Number of Tickets by Submitter

Submitter ID	Ticket-Id
Demo	TT0000000000139
	TT0000000000142
	TT0000000000143
	TT0000000000144
Total Submitted = 4	
Joe Operator	TT0000000000148
	TT0000000000149
Total Submitted = 2	
dmiller	TT0000000000146
	TT0000000000147
Total Submitted = 2	

****

Figure 4.2.3-24. Number of Tickets by Submitter Report

Average Time To Close

Average Time To Close a Trouble Ticket = 0:04:22

****

Figure 4.2.3-25. Average Time to Close Report

Number of Trouble Tickets by Status

Ticket Status

New

Number of Tickets = 6

Assigned

Number of Tickets = 1

Closed

Number of Tickets = 1

****

Figure 4.2.3-26. Number of Tickets by Assigned Status Report

Number of Tickets by Assigned Priority

Assigned-Priority

Low

Number of Tickets = 8

****

Figure 4.2.3-26. Number of Tickets by Assigned Priority Report

Summary Report to be Imported into Excel (comma separated values)

"Ticket-Id","Assigned-Priority","Closing Code","Current Site","Hardware Resource","Key Words","ProblemType","SoftwareResource","TicketStatus","New.TIME","Assigned.TIME","SolutionProposed.TIME","ImplementSolution.TIME","SolutionImplemented.TIME","Closed.TIME","Forwarded.TIME","Work Around.TIME","Not Repeatable.TIME"

"TT0000000000139","Low",,"cyclops","cyclops",,,,"New","05/22/96 11:06:44","", "","","", "","","","",""

"TT0000000000142","Low",,"cyclops","cyclops",,,,"New","05/23/96 10:13:14","","","","", "","","","",""

"TT0000000000143","Low","ConfigurationError","cyclops","cyclops",,,,"Closed","05/28/96 10:36:27","","","","05/28/96 10:40:49","05/28/96 10:40:54","","",""

"TT0000000000144","Low",,"cyclops","epserver",,,,"New","05/30/96 09:25:44","","","", "","","","","",""

"TT0000000000146","Low",,"cyclops","epserver",,,,"New","05/30/96 13:47:53","","","", "","","","","",""

"TT0000000000147","Low",,"cyclops","epserver",,,,"New","05/30/96 13:48:18","","","", "","","","","",""

"TT0000000000148","Low",,"cyclops","epserver",,,,"New","05/31/96 11:54:28","","","", "","","","","",""

"TT0000000000149","Low",,"cyclops","slimer",,,,"Assigned","06/07/96 14:04:03","06/07/96 14:06:17","","","","","","","",""

****

Figure 4.2.3-27. Summary Report

4.2.3.8.2 Report Customization

See *Remedy's Action Request System User's Guide*, Chapter 5: "Reports", page 5-1.

4.2.4 PEER/Patrol SNMP

The *OptiMaster* Master Agent uses Patrol Simple Network Management Protocol (SNMP) to communicate with Network Management Systems in proxy for applications programs. This makes the application programs remotely manageable. The Application Programming Interface (API) and run-time library provide management access to the application program's information structures as it executes. The runtime library is linked into both the Peer Master Agent and the MSS Subagent and enables the communication of Management data to the NMS(OpenView) from the managed ECS application. The Master agent communicates with the subagent and system management. In turn, the subagent communicates with compiled code in the application program. The Encapsulator is provided to communicate with programs that do not have the compiled-in code to communicate with the subagent but provide the appropriate MIB interface. This allows vendor supplied data about the host and its hardware to be monitored.

Operator control of the Master agent and Encapsulator is limited to restarting them as necessary.

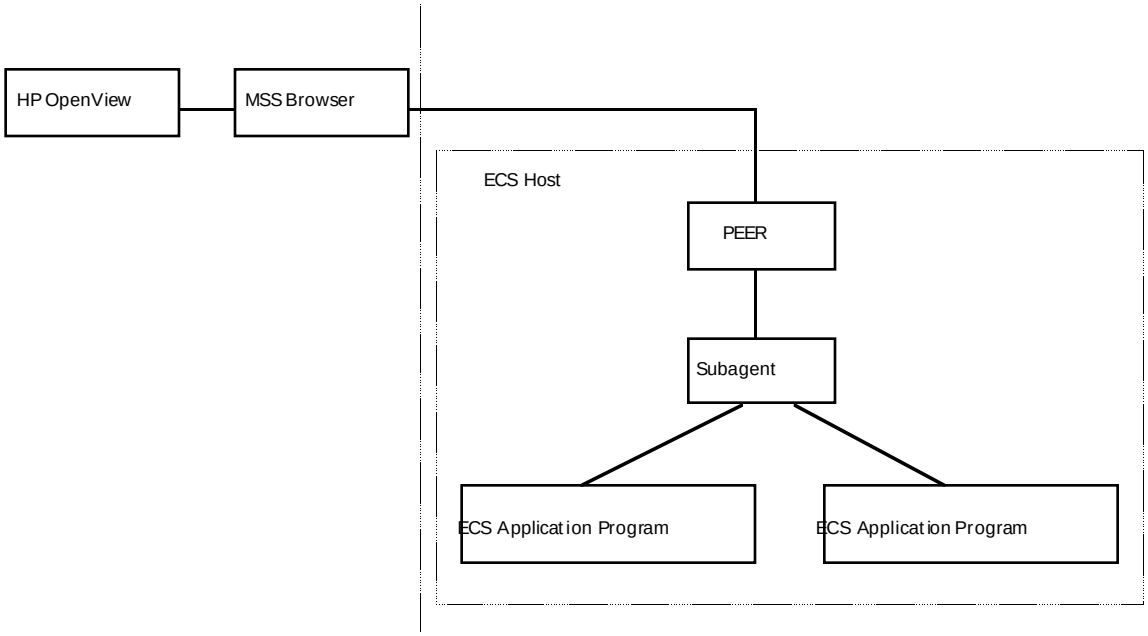

Figure 4.2.4-1. PEER role in ECS systems management data transport.

Table 4.2.4-1. Common ECS Operator Functions Performed with PEER/Patrol SNMP

Operating Function	Command/Action	Description	When and Why to Use
Start Master Agent	PEER start command See 4.2.4.1.1 below.	All SNMP requests are sent to the Master agent which delegates the responsibility for handling the requestto a subagent responsible for the MIB data attribute. The Master Agent must run first, i.e., before any subagent or encapsulator.	When necessary to restart the Master Agent
Start Encapsulator	Encapsulator start command See 4.2.4.1.1 below	Farms out requests to the vendor supplied agent based on MIB identifier of the data attribute being requested.	When necessary to restart the Encapsulator

4.2.4.1 Quick Start Using PEER/Patrol SNMP

Patrol/SNMP provides a mechanism for the system management of ECS to communicate with managed objects.

Detailed information about PEER/Patrol SNMP may found in these documents:

Patrol SNMP Toolkit OPTIPro Programmer's Guide Document 20009

Patrol SNMP Toolkit General Porting Guide Document 20010

Patrol SNMP Toolkit OPTIPro Programmer's Guide – Advanced Topics Document 20021

Patrol SNMP Toolkit OPTIPro Encapsulator Guide Document 20013

PEER/Patrol SNMP Release 2.3 documentation was used for the references made in this section.

4.2.4.1.1 Invoke PEER/Patrol SNMP From Command Line Interface

PEER/Patrol SNMP is normally started during system start-up of an ECS host. The following command is used when it is necessary to restart PEER/Patrol SNMP: This command may only be executed by an operator with root privilege.

/usr/ecs/SHARED/CUSTOM/utilities/EcMsAgPeerStart SHARED

4.2.4.2 PEER/Patrol SNMP Main Screen

Patrol SNMP does not have a graphical user interface.

4.2.4.3 Required Operating Environment

For all COTS packages, appropriate information on operating environments, tunable parameters, environment variables, and a list of vendor documentation can be found in a CM controlled document for each product. To find the documentation for Patrol SNMP, refer to the ECS Baseline Information System web page, URL:

http://cmdm.east.hitc.com/.

4.2.4.4 Databases

None.

4.2.4.5 Special Constraints

The PEER Master Agent does not accept non-alphanumeric characters in the configuration parameter **Community Name.**

4.2.4.6 Outputs

Patrol SNMP is used to communicate data and data requests between the CM Service Network Manager and application programs. No data is stored unless a collection is configured on the Network Management Platform.

4.2.4.7 Event and Error Messages

None.

4.2.4.8 Reports

None.

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